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ABSTRACT

Reading selections from six Scholastic Aptitude Tests (SAT) administered from 1947 to 1975 were analyzed to determine whether a decrease in the difficulty level of elementary and secondary textbooks, workbooks, and teachers' guides corresponded with the SAT score decline. Various indices of reading difficulty and challenge were used. Readability analysis of the SAT passages revealed generally decreasing difficulty from the stable years (1947 and 1955), through the pivotal year (1962), to the declining years (1967, 1972, and 1975). A possible gap between the difficulty of the SAT passages and eleventh grade textbooks was indicated. The SAT passages were the most difficult of any of the materials analyzed, with difficulty levels ranging from grades 11 to 15. The eleventh grade texts in history, literature, grammar, and composition had an average readability level of grades 9 to 10. There are signs of a recent increasing challenge in the textbooks, particularly at the elementary level; but in both elementary and secondary instructional materials, there has been particularly little change in writing activity. The assignments in reading, history, and literature textbooks generally require underlining, circling, and filling in of single words. Few assignments ask students to write a paragraph, story, letter, or theme. (Author/EVH)

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An Analysis of Textbooks in Relation to Declining SAT Scores

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Jeanne S. Chall
Cambridge, Massachusetts
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BACKGROUND OF THE STUDY

This study was undertaken for the Advisory Panel on Score Decline at the request of Matina S. Horner, president, Radcliffe College, and George H. Hanford, senior vice president, College Entrance Examination Board. It is an exploratory study, undertaken to determine whether any relationship exists between the declining Scholastic Aptitude Test (SAT) scores (1967 to 1975) and the textbooks used by students who took the tests. The limited nature of the study (begun in July 1976) necessarily makes the findings suggestive rather than definitive.

Our assumptions are that textbooks reflect the educational thought and practice of the time in which they are written. In turn, they disseminate theory and practice among teachers and pupils. Thus, most textbooks cannot be too far ahead or too far behind the main educational ideas of their time, particularly if they are to be successful financially. To assure the inclusion of ideas and practices that are current, the large publishing houses select as authors recognized scholars and authorities within the different disciplines. Thus, what is included in textbooks is important for a study of historical changes in educational practices and for a study of curriculum issues.

We further assumed that in studying the relationship between textbooks and SAT scores, representative textbooks from grade 1 to grade 11 should be analyzed.[1] This would permit a series of simulated "longitudinal studies" of the textbook exposure of each of six groups of students taking the SATs--in 1947 and 1955, when their SAT scores were stable; in 1962, a pivotal year;[2] and in 1967, 1972, and 1975 when the SAT scores declined.[3]

More specifically we undertook:

to analyze the difficulty of representative textbooks most likely to have been used by the six cohorts when they were pupils in the various grades of elementary and high school;

to estimate whether any trends in difficulty of the textbooks can be detected and whether these trends may be related to the SAT scores of the six cohorts--the two with stable scores (1947 and 1955), a pivotal year (1962), and the three with declining scores (1967, 1972, and 1975);

to analyze the difficulty of the SAT reading passages taken by the six cohorts, to estimate whether any changes have occurred, and whether these may be associated with changes in the textbooks and in the SAT-verbal scores.

Sampling Decisions

The limited nature of the study necessitated very limited samples for almost every aspect.

Since it was not possible to study each of the stable and declining years, we selected six time periods--1947 and 1955 for the stable SAT years, 1962 for a pivotal year, and 1967, 1972, and 1975 for the declining years. These years were selected by studying the various statistical tables on SAT scores made available to us by George H. Hanford of the College Entrance Examination Board, and in consultation with him.

For each of the selected years only the reading passages and questions from the SAT-verbal test were analyzed. Although one could argue that the vocabulary and analogies give equal or more valuable information to relate to the textbook analyses, we assumed that for a limited analysis that part of the SAT test that most resembles the task required by most textbooks would yield the most useful information.

Since the textbooks in all curriculum areas could not be analyzed, we decided that the following would probably be as representative as any. For grade 1, we selected basal readers, workbooks, and teachers' guides. For grade 6, basal readers, workbooks, and teachers' guides, grammar and composition textbooks, and history textbooks. For grade 11,

we selected literature anthologies, grammar and composition textbooks, and history textbooks.

We had planned originally to include science textbooks for grades 6 and 11, but time limitations made it necessary to decide between the history and science texts. The history textbooks were considered to be essential by several curriculum specialists consulted. For a more extensive study it would seem that science textbooks should be included because the SAT reading passages have included many science selections.

Overall, the textbook types selected represented those most likely to be used by the largest number of pupils. They also represented a high concentration of verbal practice and challenge.

The particular grade levels were selected for the following reasons: grade 1 was selected to represent the beginning of formal schooling and the initial acquirement of the reading skill. A great deal is done in teaching the child to read in the first grade and it may well be that a pace is set there. Grade 6 was selected as representing the halfway point of compulsory schooling. It also represents the completion of elementary school. Grade 11 was selected to represent the near completion of high school, and the year in which the cohorts took the SAT.

After discussion with noted textbook publishers, a decision was made to analyze only the best-selling textbooks within each of the selected grades and disciplines. Thus we assumed that if the biggest sellers within the curriculum areas, grades, and copyright years were selected, a high probability existed that our cohorts actually used those particular textbooks. Also, because it is customary for the most successful textbooks to attract followers soon after they reach a peak of popularity, it would seem that they represent others in addition to themselves. Currently, there appears to be a spreading out of the market with more textbooks available and used for each grade and discipline. However, until the early 1960s it was not uncommon for the best selling textbooks to be used by about 50 percent of the children in their intended grades.

The best-selling textbooks within each of the copyright dates were selected in consultation with James R. Squire, senior vice president, and Robert Walker of Ginn and Company, in addition to editors from Ginn's various elementary and secondary school divisions. The selections were also checked with the publishers of the textbooks.[4]

Table 1 contains the distribution of books and publishers used in our analyses. The books are listed by the six cohort years. Thus, for each SAT cohort year (the year the cohort was in the eleventh grade and took the SAT) is listed the year of birth, and the years in which he or she was in grades 1, 6, and 11.

It should be noted that the books are listed as being used three to six years following their copyright dates. This time lag in relation to copyright dates was suggested by the publishers and by several successful authors of elementary and high school textbooks as being the most realistic.

The Analysis

As can be seen from Table 1, 35 textbooks were analyzed, and for more than half of these we also analyzed the correlated teachers' guidebooks and student workbooks.

Table 1. The Textbooks and SATs Analyzed for Six Cohorts

Grade	Year	Reading and literature	History	Grammar and composition
Cohort 1:				
Birth	1931			
1st grade	1937	Publisher G (1930)		
6th grade	1942	Publisher G (1936)	Publisher B (1935)	(Not available)
11th grade	1947	(Not available)	(Not available)	(Not available)
SAT	1947	SAT reading selections		
Cohort 2:				
Birth	1939			
1st grade	1945	Publisher G (1940)		
6th grade	1950	Publisher G (1944)	Publisher B (1942)	(Not available)
11th grade	1955	Publisher C (1949)	(Not available)	Publisher D (1950)
SAT	1955	SAT reading selections		
Cohort 3:				
Birth	1946			
1st grade	1952	Publisher G (See Chall,1967)		
6th grade	1957	Publisher G (1951)	Publisher B (1951)	Publisher C (1952)
11th grade	1962	Publisher C (1952)[1]	Publisher C (1961)[2] Publisher F (1961)	(Not available)
SAT	1962	SAT reading selections		
Cohort 4:				
Birth	1951			
1st grade	1957	Publisher G (1956)		
6th grade	1962	Publisher G (1955-56)	Publisher B (1954)	Publisher C (1955)

(Continued)

Table 1 (Continued)

Grade	Year	Reading and literature	History	Grammar and composition
11th grade	1967	Publisher C (1963)	Publisher F (1964)	Publisher A (1967)
SAT	1967	SAT reading selections		
Cohort 5:				
Birth	1956			
1st grade	1962			
6th grade	1967	Publisher G (1962)	Publisher E (1968)[3]	Publisher C (1964)
11th grade	1972	Publisher G (1968)	Publisher C (1969)	Publisher C (1969)
SAT	1972	SAT reading selections		
Cohort 6:				
Birth	1959			
1st grade	1965	Publisher G (1962)		
6th grade	1970	Publisher G (1965)	Publisher C (1970)	Publisher C (1968) Publisher F (1967)
11th grade	1975	Publisher G (1973)	Publisher F (1970)	Publisher C (1973)
SAT	1975	SAT reading selections		

1. The greater difference here between copyright and probable use dates (10 years as compared to 3 to 6 years generally) occurred because of a delay in shipment of the 1958 edition. Since the readability raw scores of the 1952 and 1958 editions varied little (.3) and their contents were quite similar, we decided to use the 1952 edition for which all the analyses had been completed when the 1958 edition was received.
2. Both books analyzed as it was not clearly determined which was the top-seller.
3. According to the publisher, the 1965 and the 1968 editions were the same. The 1965 was not available, the 1968 was analyzed.

In addition, we analyzed all the reading selections, which ranged from seven to nine passages per test, in the six SATs from 1947 to 1975.

Generally, the analyses of the textbooks and SATs were undertaken to determine the level of difficulty of the text. The workbooks and teachers' guidebooks were analyzed to determine the challenge of the assigned tasks--for example, whether pupils were asked to engage in talking or writing, whether the writing assignments called for simpler or more demanding work.

More specifically, we hoped that the various indices obtained from the analyses would help answer these questions:

1. Was there a change in the difficulty of the SAT reading selections and questions from the stable years (1947 and 1955), a pivotal year (1962), to the declining years (1967, 1972, and 1975)?

2. Was there a change in the difficulty of the textbooks (and demands of the assignments) used by the cohorts of the stable years (1947 and 1955), a pivotal year (1962), and the declining years (1967, 1972, and 1975)?

Some of the more specific questions asked were:

Do various measures of readability, reading maturity, and question complexity indicate a decrease in challenge for textbooks used by the cohorts of 1967, 1972, and 1975--the years of the declining SAT scores? Are the measures higher for textbooks used by the 1947 and 1955 cohorts --those of the rising or stable SATs?

Has there been a change in the amount of reading matter within the same categories of textbooks and grades for the various cohorts and particularly for the stable as compared to the declining years?

Has there been a change in the number and ratio of illustrations? Are there perhaps more illustrations in relation to text in the books used by the declining SAT cohorts?

Has there been a change in the amount and kind of writing assigned in the textbooks, workbooks, and teachers' guides?

Has there been a change in the types of questions asked?

Has there been a change in the amount and kind of instruction given in vocabulary study?

Can changes be detected in the recommendations for additional reading?

CHAPTER 2. FINDINGS ON SAT READING SELECTIONS

The reading passages and questions for the six SAT cohort years (1947, 1955, 1962, 1967, 1972, 1975) were analyzed to determine whether any trends could be found in the challenge they presented. Among the measures used were the Dale-Chall Readability Formula, the Harvard Scales of Readability Assessment, Chall's Reading Stages, and an adaptation of Bloom's Taxonomy for measuring difficulty of questions, etc. (See Appendix B for details on these measures.)

Results

The most striking finding on the SAT reading passages is their extreme difficulty as compared to the textbooks analyzed, particularly those for grade 11. Thus, while most of the SAT passages had a Dale-Chall corrected grade level of 11-12 and 13-15, the eleventh grade textbooks had Dale-Chall corrected grade levels of about 9-10. (See Chapters 7, 8, 9 for analysis of eleventh grade textbooks.)

The other finding that appears to be of interest is the relative stability in the readability scores of the SAT reading passages from 1947 through 1972 (Table 2). However, within this relative stability, some differences can be seen. Thus 1947 and 1955, the two stable years analyzed, are the hardest in readability--each with a corrected grade level of 13-15. From 1962 through 1972 there appears to be a slight decrease of difficulty, with corrected grade levels of 11-12. There appears, however, to be a considerable drop in the Dale-Chall readability scores for the 1975 reading selections. Although the average corrected grade level is still 11-12, it veers closer to a corrected grade level of 9-10.

We also found a trend toward longer passages, with the 1947 and 1955 passages averaging 261 words and the 1975 passages averaging 442 (Table 2). Interestingly, however, the number of questions remained essentially the same-- about five per passage. One wonders whether this has possibly introduced an additional element of ease or perhaps of difficulty.

In our search for measures of question difficulty, we became aware that beginning with the 1967 test, the questions would sometimes ask for the correct answer from a complex set of choices. We present the following, which is not, of course, a direct quote from the 1967 SAT, but tries to capture its style:

All living things need the following to exist:
A) Nitrogen B) Oxygen C) Hydrogen D) Carbon
1. All of these
2. B and C only
3. A, B and C only
4. none of these

Is the intention to measure understanding of what is read or is it to measure logical analysis?

Therefore, we attempted to find a way to measure the qualitative content of the questions and choices. Guidelines for this measure which rate questions and choices on a four point scale--from 1, factual knowledge, to 4, knowledge of universals and abstractions in a field--are found in Appendix B. Each question is judged with regard to the degree of knowledge needed by a student in order to process the questions and choices given for a particular passage. For this scheme we relied heavily on Bloom (1956).

Table 3 presents the findings on the question analysis for the SATs, 1947 to 1975. From it we can note a trend. The passages in the SATs of 1947, 1955, 1962, 1967, and 1972 increase fairly steadily in the degree of knowledge required by the questions, from a mean of 2.5 to 3.1. However, the passages in the 1975 test show a decrease in question difficulty, with an average score of 2.4.

This change in the qualitative difficulty of the questions is seen more vividly in the lower section of Table 3, where the combined per-

Table 2. Relation of questions to Passage Characteristics and Dale-Chall Formula Ratings for SATs

SAT year	SAT form	Number of reading passages	Average number of words per passage	Number of questions	Average number of questions per passage	Number of running words in passage per question	Dale-Chall Formula			
							Sentence length	Dale score (percent unfamiliar words)	Raw score	Corrected grade level
1947	VSA 3	8	262	45	6	46	31	24	9.0	13-15
1955	DSA 2	9	261	47	5	50	29	28	9.4	13-15
1962	KSA 15	7	362	35	5	72	27	25	8.8	11-12
1967	PSA 13_{cp}	9	461	45	5	92	28	23	8.7	11-12
1972	USA 25	9	418	45	5	84	28	25	8.9	11-12
1975	XSA 1020	7	442	35	5	88	22	22	8.3	11-12

Table 3. SATs. Chall Reading Stages Required by the Reading Passages and Degrees of Knowledge Required by the Questions

SAT Year	1947	1955	1962	1967	1972	1975
Form analyzed	USA 3	DSA 2	KSA 15	PSA 13_{cp}	USA 25	XSA 1020
Average Chall Reading Stage for passages*	4.6	4.1	4.0	4.1	4.8	4.0
Percent Stage 3 for passages	0%	22.2%	14.3%	0%	11.1%	0%
Percent Stage 4 for passages	37.5%	44.4%	71.4%	88.9%	44.4%	100%
Percent Stage 5 for passages	62.5%	33.3%	14.3%	11.1%	44.4%	0%
Average degrees of knowledge required by the questions†	2.5	2.7	2.6	3.0	3.1	2.4
Percent Degree 1 for questions	8.9%	0%	0%	2.2%	0%	11.4%
Percent Degree 2 for questions	48.9%	52.8%	45.7%	22.2%	17.8%	57.1%
Percent Degree 3 for questions	20.0%	30.5%	45.7%	51.1%	53.3%	14.3%
Percent Degree 4 for questions	22.2%	16.7%	8.5%	24.4%	28.9%	17.1%
Combined degrees of knowledge required by the questions:						
Combined percent degrees 1 and 2	57.8%	52.8%	45.7%	24.4%	17.8%	68.5%
Combined percent degrees 3 and 4	42.2%	47.2%	54.2%	75.5%	82.2%	31.4%

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See Appendix B for description.)

†Average degrees of knowledge required by the question range in increasing difficulty from 1 to 4. (See Appendix B for description.)

centages of questions of varying degrees of difficulty are presented. As for the average degree of question difficulty, we see an increase from 1947 through 1972 of questions at the two highest degrees--from 42 percent in 1947 to 82 percent in 1972. In 1975, however, there is a drop to 31 percent at the two highest degrees of difficulty, as compared to 82 percent in 1972.

Thus, it appears that according to type of question asked and choices offered, an increase of difficulty could be seen from 1947 through 1972, with a reverse of the trend in 1975. The drop in difficulty in 1975 was found also in the Dale-Chall readability formula measures of the reading passages.

The Dale-Chall and question measures seem to indicate the following: the 1947 and 1955 SATs, those of the stable years, had relatively high Dale-Chall readability scores, but relatively low question difficulty as compared to later tests representing the declining years. The SATs of 1962, 1967, and 1972 tended to have lower readability scores and questions on a higher degree of difficulty. It appears almost as if a balance of difficulty was sought--where the passages were harder, the questions were easier; where the passages were easier, the questions were harder.

This trend seems not to have been continued in the 1975 test, where the difficulty of both the passages and the questions was found to be relatively lower. The Dale-Chall measures on the 1975 passages were the lowest of all the six tests, with a raw score of 8.26 and a corrected grade level of 11-12. The questions also appear to be the easiest of the six tests, with 68 percent of the questions rated 1 and 2 and 32 percent rated 3 and 4 (Table 3).

Another measure was used to classify the passages--Chall's Reading Stages--a measure of the general maturity of reading required of the reader for reading a given selection--from Stage 1, the stage of "saying" the words to Stage 5, the stage of highly sophisticated and selective reading for one's own purposes. (See Appendix B for an explanation of the stages and how they were used to rate the passages.) Briefly, each of the reading passages from the six SATs was rated in terms of whether it required a Reading Stage of 1, 2, 3, 4, or 5. Overall, the average Reading Stage Level for the passages of the six SATs appears to be quite high. Although no consistent trend in the findings from the Reading Stage analysis (Table 3) was found, if 1972 is excluded, there appears to be a decrease in difficulty. The 1947 passages were most demanding, with 63 percent classified as Stage 5, whereas 0 percent of the 1975 passages were classified as Stage 5.

Impressions

After close examination of the SAT reading passages, we were impressed with their difficulty. Indeed, it seems that nowhere in the textbooks being analyzed were the requirements as great. The reading passages in the earlier tests of the stable years--1947 and 1955--seem to require a style of thinking that might be characterized as academic. The passages seemed also to be more abstract.

The later tests--1962, 1967, 1972, 1975--seem to cover topics with which a high school student might be more familiar. Generally, there

Table 4. Subject of SAT Passages by Year

	1947	1955	1962	1967	1972	1975
Biography	1					2
Economics	1	2				
Philosophy	3	1	2	4	1	
Linguistics	1					1
Literature	2		1	1	2	
Music, art		1		1	1	
Political science		2	1	1	1	
Travel, geography		1			1	
Social science					1	1
Physical science		1	2	1	1	1
Biological science		1	1	1	1	2
Total number of passages for test	8	9	7	9	9	7

seems to be a trend in the later tests toward making the subject matter more relevant for the student. A comparison of passage topics by year of SAT indicates some change (Table 4). While most of the topics have been and continue to be from the sciences--physical, natural, and social --the early, stable years seem to contain more selections from what are usually considered the more abstract subjects (philosophy, economics, political science) while the later tests had more selections from the less abstract (biography and biological sciences).

There were a few passages from literature in 1947 and 1972, and these were much lower in difficulty--whether judged by Reading Stage Level, readability by scale, or by readability formula. (See Tables I - VI in Appendix A for the various measures on each of the passages from SAT tests in 1947, 1955, 1962, 1967, 1972, and 1975.)

To conclude, findings from the various analyses of the SAT reading passages suggest that all the reading selections from the years studied seem to present a greater challenge than the textbooks analyzed for the eleventh grade.

The analyses also indicated a decrease in challenge of the reading selections from the stable years to the declining years on various measures of readability and maturity of subject matter and treatment. Analyses of questions seemed to reveal the reverse. However, the 1975 SAT reading selections had the lowest challenge on all measures of passage and question difficulty.

CHAPTER 3. FIRST GRADE READERS, WORKBOOKS, AND TEACHERS' GUIDES

The various published studies of first grade reading textbooks delineate a steady decrease of difficulty of beginning readers to the early 1960s (Chall, 1958; Chall, 1967). This lessening of difficulty has been found

on such indices as vocabulary load, the number of different or "new" words, the number of repetitions, the percent of high versus low frequency words, and so on.

There were changes also in the teachers' guides. They became more detailed, giving more and more instructions for guiding the pupils' reading. They also gave more instructions for followup activities. However, fewer of these utilized reading and writing. They also put decreasing amounts of emphasis on the teaching of phonics (decoding).

Table 5 presents the relevant data on indices of difficulty and ease for first grade readers published from 1920 to 1962 (Chall, 1967). The first columns present the publication dates, the probable dates used, and the probable years in which pupils who were taught to read by the various editions took the SAT.

From Table 5 we see a consistent decline in the various indices of difficulty and challenge from 1920 to 1962. The vocabulary load, or number of "new" words, decreased steadily, with rather a plateau during the 1950s, but with a new decrease in 1960. The number of new words per 100 running words decreased steadily through 1956, with an increase in 1962. It is interesting to note that while the "reading challenge" kept declining over the 40 year period, the ratios of pictures to text kept increasing.

With regard to the teachers' guides, the analyses indicate a steady increase in the teachers' verbal directions and questions. (See last two columns, Table 5.) This increase in verbal guidance, it should be noted, was taking place during the 1940s, 1950s, and early 1960s, when teachers were advised to divide their classes into two, three, or more instructional groups for reading. Thus, the increasing teacher talk to pupil reading raises the question of whether the teacher was left with enough time to provide each child with the stimulation he or she needed, or whether pupils were given enough reading practice.

From 1920 to 1962 (with a slight reversal in the teachers' guide for 1962), there has been a steady increase in the quantity and specificity of instructions to the teacher. Thus, in 1920 it took 561 words to explain how a typical story was to be taught. There was a steady, steep rise until a peak of 2,300 words of instruction was reached in 1956, with a slight drop to 2,000 in 1962. It should be noted that the length and specificity of the instructions to the teacher paralleled the steady decline in difficulty of the readers in terms of vocabulary and picture loads. It also paralleled the decrease in emphasis on the teaching of phonics (Chall, 1967).

The final column, representing the number of words a child reads per each question asked by the teacher, shows a steady decline, with 47 uninterrupted words read by the child in 1920 to 12 words in 1962.

In summary, for two cohorts in the stable SAT period--1947 and 1955--it appears that their first grade reading programs were substantially more challenging than were those of the declining cohorts.

A more recent analysis of first grade readers published from 1968 to 1975 by Helen Popp (1975) indicates a general reversal of the trends noted above, already seen to a limited extent in the 1962 reader. Particularly evident in the late 1960s and early 1970s were readers with heavier phonics programs (already observed as the beginnings of a trend by Chall in 1967). According to Popp, "since 1967 the changes have been

Table 5. Characteristics of First Grade Readers and Teachers' Guides; 1930-1962 (From Chall, 1967)

Publisher and copyright dates	Years probably used	Years cohorts probably took SAT	Vocabulary load (number of different words in book)	New words per 100 running words	Pictures per 100 running words	Teachers' guide instructional words by teacher per story read	Words child reads per question asked by teacher
Publisher G 1920	1923-26	1933-36	425	2.4	.9	561	47
Publisher G 1930	1933-36	1943-46	282	2.1	1.3	814	26
Publisher G 1940	1943-46	1953-56	178	1.7	1.4	1266	25
Publisher G 1956	1959-62	1969-72	177	1.4	1.6	2300	14
Publisher G 1962	1965-68	1975-78	153	1.9	1.7	2000	12

more dramatic, more obvious....The 1971 edition of the Scott, Foresman Reading Systems retains an emphasis on comprehension and, in fact, indexes 'letter-sound relationship cues' under 'comprehension strategies' ....Level 4 (first grade) includes the recognition and use of letter-sound relationship cues for consonants and vowels." (Popp, 1975, pp. 104-105.) It should be noted that the phonics in the first grade programs of the earlier Scott, Foresman editions included only single consonants. The teaching of vowels in grade 1 indicates significant increase in challenge.

To conclude, the first grade reading programs used by the two stable SAT cohorts, 1947 and 1955, were harder and more challenging. Moreover, if the teacher followed the instructions given in the teachers' guides, these two cohorts probably read more from their readers because the teachers talked less.

The cohorts during the years of declining SAT scores, when in grade 1, were taught from easier readers containing fewer "new" words, a higher ratio of pictures to words, a more limited phonics program, and probably were given less time to read in class because their teachers were spending more time in "verbal guidance."

A change toward greater challenge, started in a rather limited way in the early 1960s, has taken on added momentum since 1967. Although we did not have sufficient time to do a detailed analysis of the latest edition of the first grade Scott, Foresman program, a cursory examination of it, as well as of Popp's classification of reading programs published from 1968 to 1975 (1975), indicates a dramatic increase in challenge--in greater vocabulary difficulty, in greater vocabulary diversity, in the varied content, and in the stronger decoding program. The possible significance of this increase is discussed in the section on summary and conclusions.

CHAPTER 4. SIXTH GRADE READERS, WORKBOOKS, AND TEACHERS' GUIDES

The sixth grade readers analyzed were selected to represent the two "stable" SAT cohorts (1947 and 1955), the pivotal year (1962), and the three "declining" cohorts (1967, 1972, 1975). Table 1 presents the books, copyright dates, the dates most likely in use by the six SAT cohorts, and so on.

The books were analyzed in terms of the degree of challenge they represented. Thus, we analyzed their reading difficulty, the stage of reading development they required, the types of stories, and other aspects of style and content.

The correlated workbooks and teachers' guides were also analyzed for the kinds of practice and methodology suggested to pupils and teachers.

Table 6 presents findings on the readability measures and on the reading stages for the readers most likely used by the six SAT cohorts when they were in the sixth grade. From Table 6 we note little change in the readability scores for the 1936 through the 1962 editions. Although there is some variation in the formula raw score, the Dale-Chall corrected grade levels of the readers averaged fifth to sixth grade. The 1965 edition appears to show an increase in difficulty to a corrected grade level of 7-8.

There appear to be some changes in the readability factors, however, with a steady decrease in the length of sentences from the 1936 to the 1962 editions. The reverse is found for unfamiliar words (Dale score), with a steady increase from 1936 to 1965. Thus, it seems that while the words became harder, the sentences became easier. This helps to explain the relative stability of the formula results, since the Dale-Chall formula is based on these two factors.

Time does not permit us to pursue these changes further. A more comprehensive study would attempt to investigate why these particular changes took place. One possibility might be the growing use of readability measurement as one of the criteria in local and state adoptions of textbooks. (See Chall [1958] for a history of research and application of readability measurement in education.)

One might also ask whether the decrease in length of sentences is part of a general change in our language? (Indeed, adult literature has been found to be decreasing in sentence length since the late 1800s.) Or is it that, in being sensitive to the readability formulas in use by textbook evaluation committees, the sentences were shortened to get a "good score," since sentence structure is easier to change than words.

The reading stages do show some consistent changes. As seen in Table 6, there has been a gradual decline in the reading stage level from 1936 to 1962, but an increase is observed in 1965. This decline from 1936 to 1962 is even more striking when viewed as the percent of stories at various stage levels. Thus, in 1936 the majority of stories (64 percent) were at Stage 3. In the 1944/51 editions, Stage 3 stories dropped to 42 percent and by 1955-6/62 they dropped further to 29 percent. It is important to note the reversal of this trend in the 1965 edition, with 67 percent of stories on Stage 3 level. Thus, there appears to be some evidence for a decrease in challenge during the SAT declining years (with the exception of 1965) as compared with the stable years.

Further evidence of change was sought on the physical and content features--illustrations, pages of reading matter, and types of stories. These findings are presented in Table 7.

As can be seen from Table 7, there is no consistent trend regarding the number of pages of reading matter over time. There is a steady increase, however, in the percent of pictures-from 21 percent of pages containing pictures in 1936 to 38 percent in 1944/51, 47 percent in 1955-6/1962. It should be noted that, again, there is a reversal of the trend in 1965. The extent of pictures dropped to 33 percent.

A definite trend was also found in the amount of literature included in the various editions--a steady decrease with time. In the stable years, about 40 percent of the books contained selections classified as literature (adapted and unabridged). This decreased to 35 percent in 1955-6/1962. Again, as with reading stages and with pictures, the 1965 edition seemed to become more challenging again, with a rise in the literature classification to 86 percent.

The trend is even stronger for the unabridged literature alone, with 35 percent in the 1936 edition, 24 percent in 1944/51, a low of 9 percent in 1955-6/1962 and an increase to 49 percent in 1965.

A similar trend is found for essays and articles: 27 percent in 1936, 6 percent in 1944/51, 2 percent in 1955-6/1962 and an increase in 1965 to 11 percent.

Table 6. Dale-Chall Readability Formula Measures and Chall's Reading Stages of Sixth Grade Readers (Publisher G)

Copyright date	1936	1944/1951*	1955-6/1962*		1965
Book	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1	Basic reader grade 6^2	Basic reader grade 6
Grade	6	6	Combined 6^1 and 6^2† (6^1)	(6^2)	6
Dale-Chall Readability Formula					
Average sentence length	20.1	16.4	13.6 (14.0)	(13.3)	16.5
Average Dale score (Percent unfamiliar words)	6.4	8.9	9.6 (8.5)	(10.7)	9.8
Average raw score	5.6	5.8	5.8 (5.7)	(5.9)	6.0
Average corrected grade level	5-6	5-6	5-6 (5-6)	(5-6)	7-8
Chall's Reading Stage - average	2.7	2.4	2.3 (2.1)	(2.5)	2.8
Percent Stage 2	36%	58%	71% (91%)	(50%)	25%
Percent Stage 3	64%	42%	29% (9%)	(50%)	67%
Percent Stage 4	0%	0%	0% (0%)	(0%)	8%

*The findings for the 1944 and 1951 editions and the 1955-6 and 1962 editions are presented together since there were virtually no changes in them.
†Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete 6th grade program.

Table 7. Physical and Other Content Features Analysis of Sixth Grade Readers Publisher G

Copyright date	1936	1944/1951	1955-6/1962		1965
Book level	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1	Basic reader grade 6^2	Basic reader grade 6
Grade level	6	6	Combined 6^1 and 6^2* (6^1)	(6^2)	6
Total number of reading pages	404	441	574 (288)	(286)	480
Total number of words (approximation)	107,559	79,856	101,096 (50,984)	(50,112)	114,125
Percent of pages with pictures	21%	38%	47% (46%)	(49%)	33%
Total number of poems	23	0	13 (6)	(7)	17
Percent of total literature	41%	43%	35% (23%)	(48%)	86%
Percent of adapted literature	6%	19%	26% (15%)	(38%)	37%
Percent of unabridged literature	35%	24%	9% (8%)	(10%	49%
Percent of essays and articles	27%	6%	2% (0%)	(4%)	11%
Percent of drama	0%	0%	0% (0%)	(0%)	3%
Percent of stories written specifically for reader	32%	51%	63% (77%)	(48%)	0%

*Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete 6th grade program.

(Continued)

Table 7 (Continued)

Copyright	1936	1944/1951	1955-6/1962		1965
Book level	Basic reader	Basic reader	Basic reader	Basic reader	Basic reader
Grade level	grade 6 6	grade 6 6	grade 6^1 combined 6^1	grade 6^2 and 6^2*	grade 6 6
Treatments of stories and articles					
Percent narrative	61%	100%	91% (96%)	(86%)	65%
Percent expository	39%	0%	9% (4%)	(14%)	35%
Topics of stories and articles					
Percent home/school/personal experiences	3%	14%	15% (31%)	(0%)	3%
Percent sports/adventure/fantasy/ humor/science fiction	26%	24%	16% (23%)	(10%)	14%
Percent nature/animals/technology	15%	13%	7% (7%)	(7%)	5%
Percent nationalism/people of other countries	12%	13%	16% (0%)	(31%)	26%
Percent history	9%	14%	16% (27%)	(4%)	6%
Percent biography	15%	14%	14% (4%)	(24%)	26%
Percent science	3%	0%	0% (0%)	(0%)	3%
Percent folklore/fairy tales/ legends/fables/mythology	17%	8%	16% (8%)	(24%)	17%

*Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete sixth grade program.

A measure that seems to be the reverse of the amount of literature, particularly unabridged literature, is the percent of stories written specifically for the reader. Although we were not certain that we identified all the stories and articles that fit this category, we present the findings because they appear to be useful. If we use them as an index of "ease," or lack of challenge, then we note a steady increase of ease from 32 percent in 1936 to 51 percent in the 1944/51 editions, and 63 percent in the 1955-6/62 editions. Again, the 1965 edition reverses the trend with 0 percent of stories written specifically for the reader.

Drama is included in only one of the editions--in the 1965. The extent of poetry follows trends found in indices of challenge--highest in the 1936 edition, none in the 1944/51, and somewhat higher in the 1955-6/1962. In 1965, as with other indices of challenge, there is an increase.

The types of stories and the themes also seem to change with the dates of the editions, with more mature treatments and themes included in the earlier, stable years and the less mature in the later, declining SAT score years. Thus, the ratio of expository to narrative stories decreased. In 1936, the ratio was two to three. In 1944/51, all of the stories were narrative, and in the 1955-6/62 editions, 91 percent were narrative. By 1965, the ratio seemed to return to that of 1936, with 35 percent of the selections expository.

With regard to topics, although the trends are not as strong, there does seem to be a change from greater maturity in 1936 to lesser maturity in the 1944/51 and 1955-6/62 editions. As on other measures of challenge, there is an increase in the maturity of topics in the 1965 edition. Thus, stories of sports/adventure, etc., topics of interest to pupils in grade 6, tend to decrease steadily from 26 percent in 1936 to 14 percent in 1965. At the same time, the topics of home/school/personal experiences, ones that are of interest to younger children, increase from 1936 to 1962 and drop again in 1965 (see Table 7).

Analyses of the teachers' guidebooks also seem to reveal a drop in challenge during the years corresponding to the SAT declining years. This can be seen in such varied measures as how the teacher is asked to prepare the children for the reading of their stories, the reasons given to the children for reading, the questions teachers are to ask the children prior to and following the reading of stories, and the amount and kind of writing expected of the pupils after the main reading lesson. Thus, the writing required dropped from 44 percent in the 1936 textbook to 4 percent in 1965 (see Table 8).

Table 9 represents those aspects of the teachers' guides that focus on establishing background for the children and preparation for reading the stories. The trends are not always clear, but here too, there seem to be signs of decreasing challenge over time, at least to 1962; with an increase in 1965.

The same trend can be seen for the "average number of words spoken by the teacher" (as suggested in the guidebook) to prepare the children for reading. The numbers are low in 1936 and high during the 1944/51 and 1955-6/62 years. There is a drop again in 1965. The reasons for reading given to the children show a similar trend--a greater emphasis on what seem to be more mature reasons in 1936, a decrease in such emphasis during 1944/51 and 1955-6/62, with an increase again in 1965.

There is a similar trend for the followup activities suggested in the guidebooks (see Table 8).

Table 8. Followup Activities Suggested in Teachers' Manuals for Sixth Grade Readers (Publisher G)

Copyright date	1936	1944/1951	1955-6/1962		1965
Book	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1 Combined 6^1 (6^1)	Basic reader grade 6^2 and 6^2* (6^2)	Basic reader grade 6
Grade level	6	6			6
Percent of stories with rereading	100%	75%	57% (64%)	(50%)	92%
Reasons for rereading:					
Percent rereading to find factual information	59%	45%	32% (43%)	(20%)	27%
Percent rereading for interpretation of tone	0%	22%	54% (29%)	(80%)	46%
Percent rereading to relate emotionally/personally to story	0%	22%	7% (14%)	(0%)	9%
Percent rereading to read to others/to dramatize	41%	11%	7% (14%)	(0%)	18%
Average number of activities per story	2.9	3.6	4.3 (4.5)	(4.1)	6.2
Percent - discussion	16%	42%	30% (32%)	(27%)	31%
Percent - writing	44%	9%	8% (6%)	(10%)	4%
Percent - vocabulary study	6%	30%	23% (32%)	(14%)	54%
Percent of non-print activities	34%	19%	39% (30%)	(49%)	11%

(Continued)

Table 8 (Continued)

Copyright date	1936	1944/1951	1955-6/1962		1965
Book	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1	Basic reader grade 6^2	Basic reader grade 6
Grade level	6	6	Combined 6^1 and 6^2* (6^1)	(6^2)	6
Average number of suggested additional readings per story	2.6	1.3	4.3 (4.3)	(4.4)	1.6
Percent of similar stories suggested	66%	38%	44% (32%)	(57%)	21%
Percent of literature suggested*	17%	8%	36% (47%)	(23%)	63%
Percent of poems suggested	0%	54%	16% (15%)	(18%)	5%
Percent of reference works suggested*	17%	0%	4% (6%)	(2%)	11%

*Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete sixth grade program.

Note: When a general suggestion is given, such as suggesting that a subject be looked up further or that additional similar stores be read, this is counted as one (1).

Table 9. Establishing Background and Preparing Children for Reading Teachers' Manuals for Sixth Grade Readers (Publisher G)

Copyright	1936	1944/1951	1955-6/1962		1965
Book	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1	Basic reader grade 6^2	Basic reader grade 6
Grade level	6	6	Combined 6^1 and 6^2* (6^1)	(6^2)	6
Statements and/or questions spoken by the teacher per story:					
Average number of actual statements and/or questions	1.0	2.8	6.2 (5.4)	(7.1)	3.4
Average number of inferred statements and/or questions	3.5	4.6	4.0 (3.4)	(4.6)	3.6
Average total number of statements and/or questions	4.5	7.3	10.3 (8.9)	(11.7)	7.0
Average total number of words directed by manual for teacher to speak	52	128	138 (117)	(159)	91
Reasons for reading:					
Percent to be entertained by the story	18%	0%	9% (9%)	(10%)	0%
Percent to relate emotionally to the story	0%	0%	5% (0%)	(10%)	0%
Percent to find out who, what where, when	50%	38%	69% (77%)	(60%)	42%
Percent to find out why, how	14%	62%	17% (14%)	(20%)	50%
Percent to compare, contrast	18%	0%	0% (0%)	(0%)	8%

*Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete sixth grade program.

The amount of rereading suggested in the teachers' guidebooks is highest in 1936 (rereading is suggested for 100 percent of the stories), drops somewhat in 1944/51, continues to drop in 1955-6/1962 and rises again in 1965.

Although all the findings do not fall directly within this general trend, it seems as if we are dealing with almost a reverse bell-shaped curve, with the greater challenge and difficulty usually found in the 1936 edition, a decline in the 1944/51 and 1955-6/62 editions, and an increase in 1965.

To take just one additional example: Recommendations of reference works are relatively high in 1936 (17 percent), low in the middle years (0 percent in 1944/51 and 4 percent in 1955-6/62) and higher (11 percent) in 1965 (see Table 8).

Pupil activities in the correlated workbooks also show some evidence of decreasing challenge in the 1944 to 1962 editions, with a rise again in 1965 (see Table 10). This may be found in the amount of vocabulary practice--almost none in 1955-6/62, with the highest emphasis in 1965. There also seems to be a high, a low, and then a high again for comprehension skills practiced. As might be expected, the emphasis on phonics at sixth grade level is the reverse of that for comprehension--from relative highs in 1944 to 1962, and a low in 1965. The reversal is logical since phonics is the less mature and challenging activity in the sixth grade.

Among the tasks in the workbooks that have remained relatively stable over time are the amount and kind of writing (Table 10). Generally, the kind of writing required most by the workbooks was underlining, circling, or numbering of answers. In 1944/51 about 59 percent of the workbook exercises were of this kind. This decreased somewhat in 1955-6/62, with 50 percent of the exercises requiring such writing, and a further decrease in 1965 to 45 percent. It appears as if this decrease was balanced by a slight increase in the second most popular way of answering--a single word in a blank space--from 29 percent in 1944/51 to 36 percent in 1965. With regard to the writing of single and multiple sentences, the percentages are low and tend to stay low.

Summary and Conclusions--Sixth Grade Readers

The analyses of the sixth grade readers, teachers' manuals, and pupil workbooks revealed a trend of decreasing challenge from 1944 to 1962. The trend was not as clearcut as for the first grade readers, but there were sufficient signs that the sixth grade readers published in 1936 were also more challenging than those published during 1944/51 and 1955-6/62. Similar to the first grade readers, there appears to be a current trend toward increasing difficulty and challenge as seen in the 1965 edition.

Table 10. Analysis of Workbooks for Sixth Grade Readers (Publisher G)

Copyright	1936	1944/1951	1955-6/1962		1962
Book	Basic reader grade 6	Basic reader grade 6	Basic reader grade 6^1	Basic reader grade 6^2	Basic reader grade 6
Grade level	6	6	Combined 6^1 and 6^2* (6^1)	(6^2)	6
Total number of pages		96	75 (75)	(75)	127
Estimated amount of expected writing:					
Estimated percent of underline, circle, number the correct answer		59%	50% (52%)	(49%)	45%
Estimated percent of one word answers		29%	31% (28%)	(33%)	36%
Estimated percent of one sentence answers		12%	17% (18%)	(15%)	15%
Estimated percent of more than one sentence answers		0%	2% (2%)	(3%)	4%
Skills Practiced for sample stories:					
Percent of comprehension		20%	11% (22%)	(0%)	44%
Percent of phonics, rootwords, and affixes		12%	16% (13%)	(19%)	3%
Percent of structural analysis of sentence		3%	10% (0%)	(19%)	0%
Percent of use of context clues		17%	19% (26%)	(13%)	0%
Percent of vocabulary meaning		20%	3% (0%)	(7%)	31%
Percent of locating and organizing information and reading for specific purposes		28%	41% (39%)	(42%)	22%

*Because the 6^1 and 6^2 readers were analyzed separately, the combined scores are estimated figures for the complete sixth grade program.

This trend was found for the levels of reading stages, the proportionate number of pictures to print, the amount and kind of literature included in the reader--particularly unabridged literature, stories written expressly for the reader, and the ratio of expository to narrative writing. The analyses of the teachers' guidebooks and pupil workbooks also revealed a similar trend of more challenging activities in the earlier editions, a decrease in the middle editions, and often an increase in challenge in the 1965 edition.

Several indices showed little change with time--the Dale-Chall Readability Scores, for example were essentially the same in the 1936 to the 1962 editions, although the 1965 showed an increase. Some trends were also noted with regard to a possible increase in unfamiliar words and a decrease in sentence length after 1936. Another index of challenge that did not follow the usual trend was the extent of writing suggested. All the editions seemed to suggest few writing activities, but these also represented a steady decrease from 1936 to 1965. The most common writing activity was to underline, circle, number, or fill in a blank with one word. The writing of more than one sentence was rarely suggested.

CHAPTER 5. SIXTH GRADE GRAMMAR AND COMPOSITION TEXTBOOKS

General Scheme for Analysis

Five sixth grade grammar and composition textbooks were analyzed (copyright dates 1952 to 1968). Unfortunately, these covered only the SAT cohort years of 1962 to 1975. The sixth grade grammar textbooks likely to have been used by two of the stable SAT cohorts--1947 and 1955--were not available for analysis.

A late 1960 version of a best-selling textbook of the stable years was made available and was included in our analysis. However, although the newer edition retained the same author as the requested earlier edition, the content differed. It was written from the viewpoint of the new transformational grammar of Noam Chomsky. This revolutionary view of language and grammar was just published in 1958, in Chomsky's Syntactic Structures. Since Chomsky's new view of grammar was, in all probability, not available to textbook authors before 1958, the late 1960 version of the sixth grade grammar textbook could not be the same as the requested, pre-1958 edition.

The major purpose of the analyses --a comparison of the degree of challenge presented over time, with regard to differences between the textbooks used during the stable years and the declining ones--could not, therefore, be achieved.

Since our analysis did not cover the full range of cohort years, the findings are presented as essentially descriptive and suggestive. Trends observed will be only for the years 1962 to 1975.

Analysis of the grammar and composition textbooks presented still another problem. These books are not "read" as are the readers and history textbooks. Their main purpose is to teach how to write through appropriate knowledge, demonstration, and practice, and to impart knowledge of and skill with the language.

To estimate the degree of challenge they present, overall measures of readability and reading stage development would not be appropriate. Instead, we analyzed only selected portions--examples and illustrations of good student writing, and examples of general good writing from literature, historical speeches, or similar sources.

Both the student and literary examples of good writing were tested for readability by the Dale-Chall Formula and for Chall's Reading Stage Level. In addition, the literary examples were rated on a three-point scale of language complexity (from familiar and informal to formal and difficult) and a three-point scale of content difficulty (from familiar life experiences to highly detailed and technical). (See Appendix B for further details on these rating scales.)

Analyses were made of other features of the books: the total number of reading pages, approximate number of words in the text, and so on. To estimate the importance placed on vocabulary study, and on the study of sentences, paragraphs, and themes, we estimated the percent of the textbook devoted to each of these. In addition, a breakdown was made of the relative emphasis placed on text, exercises, and examples.

Since one of the major purposes of such texts is to improve the students' writing, an estimate was made of the amount of writing required or suggested. Thus, the exercises were classified primarily as verbal, or as requiring some written response--for example, underlining the correct answer, punctuating or capitalizing; inserting a word in a blank; writing a one-sentence answer; writing more than one sentence (including an outline); writing a paragraph, story, report, letter, theme, or term paper.

Our hypotheses were that the readability levels, the Reading Stage Levels, and the content and linguistic difficulty measures would differ for the student and literary examples; that the student examples would tend to be easier--with lower readability and stage level scores, and that the readability and stage levels would rise and fall in relation to the increases and declines of the SAT cohort scores.

A perusal of Table 11 suggests that the pupils who used the more recently published grammar and composition textbooks were exposed to a heavier load of work--the number of reading pages increased from 1952 to 1968, as did the total number of words, the number of pages devoted to vocabulary study, and so on. An increase was also found in the number of pages devoted to exercises--from about one-fourth in 1952 to more than one-third in 1955 and over one-half in 1964 and 1968.

The linguistic complexities seem to remain about the same over the four sample years. Thus the Dale-Chall readability levels for the examples of good student writing remain about the same--at a 5-6 corrected grade level (Table 12). It is interesting to note, however, that similar to the Dale-Chall readability findings for the sixth grade readers, there is a rise in the percent of unfamiliar words and a decline in average sentence length, while the raw scores and corrected grade levels remain the same.

Table 11. Physical and Other Content Features Sixth Grade Grammar and Composition Textbooks

Date	1952	1955	1964	1968	1967*
Publisher	Publisher C	Publisher C	Publisher C	Publisher C	Publisher F
SAT cohort	1962	1967	1972	1975	1975
Total reading pages	319	320	354	354	365
Total words approximation	53,018	64.170	80,648	82,713	96,524
Number of words per reading page.	166	200	228	234	264
†Total number of picture pages.	96	94	87	77	95
†Percent of picture pages	30%	29%	25%	22%	26%
†Total number of vocabulary pages	104	101	157	142	139
†Percent of vocabulary pages.	33%	32%	44%	40%	38%
†Total number of exercise pages	79	120	192	183	174
†Percent of exercise pages	23%	38%	54%	52%	48%
†Total number of sentence, paragraph, and theme pages	38	37	74	85	100
†Percent of sentence, paragraph, and theme pages	12%	12%	21%	24%	27%

*Because the 1942 and 1957 editions requested were not available, the publisher sent this 1967 edition by the same author. It is based on the recently developed theories of transformational grammar.
†Not mutually exclusive.

Table 12. Readability Measures and Chall's Reading Stages and Linguistic and Cognitive Levels for Sixth Grade Grammar and Composition Textbooks

Date	1952	1955	1964	1968	1967*
Publisher	Publisher C	Publisher C	Publisher C	Publisher C	Publisher F
Student Writing Examples†					
Dale-Chall Readability Formula					
Average sentence length.	15.0	13.0	13.5	13.5	11.5
Average Dale Score (percent of unfamiliar words).	5.5	6.8	8.2	8.2	6.5
Average raw score.	5.2	5.4	5.6	5.6	5.2
Average corrected grade level.	5-6	5-6	5-6	5-6	5-6
Chall's Reading Stage average	2.2	2.5	3.0	3.0	2.2
Percent of Stage 2	75%	75%	0%	0%	75%
Percent of Stage 3	25%	25%	100%	100%	25%
Literary Writing Examples†					
Dale-Chall Readability Formula					
Average sentence length.	38.0	27.2	23.0	28.2	12.8
Average Dale score (percent of unfamiliar words).	9.8	7.8	8.7	7.8	7.8
Average raw score.	7.0	6.2	6.1	6.3	5.5
Average corrected grade level	9-10	7-8	7-8	7-8	5-6
Chall's Reading Stage average	2.2	2.2	2.0	2.0	2.8
Percent of Stage 2	75%	75%	100%	100%	25%
Percent of Stage 3	25%	25%	0%	0%	75%

(Continued)

Table 12 (Continued)

Date	1952	1955	1964	1968	1967*
Publisher	Publisher C	Publisher C	Publisher C	Publisher C	Publisher F
Linguistic level average	2.0	2.0	2.0	2.0	2.0
Cognitive level average	1.0	1.2	1.0	1.2	1.8
Exercise sentences					
Dale-Chall Readability Formula					
Average sentence length	7.5	7.8	8.2	9.8	7.2
Average Dale score (percent unfamiliar words)	8.0	6.2	9.5	7.8	1.0
Average raw score	5.3	5.0	5.5	5.3	4.2
Average corrected grade level	5-6	5-6	5-6	5-6	4 or below

*Because the 1942 and 1957 editions of the requested books were not available, the publisher sent this 1967 edition by the same author.
†Note: The same examples of student writing are used in both the 1964 and 1968 editions.
**Note: Only three examples could be found for sample of literary "good writing" for 1964.

The examples of literary writing seem to get easier with later publication dates. There is a decrease in readability from a Dale-Chall grade level of 9-10 in 1952 to a 7-8 in 1968. There is a decrease in average sentence length, from 38 words in 1952 to 28 in 1968. As noted earlier, the 1967 book represented a new trend in grammar textbooks (the use of transformational grammar) and was therefore not included in our study of trends.

The readability levels of the exercise sentences are rather consistent (at 5-6 grade level) although there appears to be a drop in 1967 to fourth grade or below.

To summarize the readability findings: it appears that while the amount of reading in the textbooks may have increased, the complexity level of the language decreased. Thus, over time, the pupils may have been working longer on less challenging material.

Other Estimates of Maturity and Complexity

The Reading Stage levels for the examples of student writing (Table 12) seem to show a trend toward higher maturity from 1952 to 1968, if we exclude the 1967 volume.

The Reading Stage levels for the examples from literary writing (Table 12) seem to show no consistent trend over time. Contrary to findings of the readability measures, they are lower than are those for the examples of student writing.

It is difficult at this point to interpret these findings, except that the examples used by the authors tended to stay within the lower Reading Stages, whether they were from student writing or from literary or historical works. This seems to be borne out by the findings on the linquistic and cognitive levels of the literary examples. According to the three point scales devised and used on the literary examples, the cognitive level (1.2) seems to be below the linguistic level (2.0). Neither seems to show a general trend over time.

The remaining levels of challenge studied are concerned with the amount and kind of work required of the student when doing exercises in the textbook (Table 13) and in the correlated workbook (Table 14). Overall, there appears to be very little challenge in the writing tasks assigned or suggested. The great majority, approximately 60 to 70 percent, require only underlining the correct answer or filling in one word. There seems to be little change on these from 1952 to 1968.[5] Writing of paragraphs, themes, stories, reports, and letters seems to decrease over time. These writing requirements are generally low, from about 13 percent of exercises in 1952, and decrease further to 6 percent in 1968.

The status of writing is similar in the workbooks (Table 14). Most of these exercises ask the student to underline, circle, and insert a word or a sentence in the proper spaces. Nineteen percent of the exercises in 1955 called for the writing of more than one sentence. This drops to 7 percent in 1965 and 1968.

Summary

The analyses of sixth grade grammar and composition textbooks covering the years 1962 to 1975 revealed the following.

Table 13. Degree of Writing Required for Exercises in Sixth Grade Grammar and Composition Textbooks

Date	1952	1955	1964	1968	1967*
Publisher	Publisher C	Publisher C	Publisher C	Publisher C	Publisher F
Types of exercises:	N/105	N/134	N/205	N/198	N/178
Verbal only	7%	11%	9%	14%	9%
Exercises requiring writing:					
Underline, choice, punctuate, capitalize	43%	30%	44%	38%	21%
One word	25%	31%	28%	29%	37%
One sentence	9%	15%	7%	11%	11%
More than one sentence	3%	3%	4%	2%	4%
Paragraph	2%	4%	2%	2%	8%
Theme, story, report, letter	11%	6%	6%	4%	10%
Combined:					
Underline and one word	68%	61%	72%	67%	58%
More than one sentence and paragraph and theme	16%	13%	12%	8%	22%

*Because the 1942 and 1957 editions of the requested grammar books were not available, the publisher sent this 1967 edition by the same author.

Table 14. Analysis of Workbooks for Sixth Grade Grammar and Composition

Date	1955	1965*	1968*
Publisher	Publisher C	Publisher C	Publisher C
Total number of pages	158	158	158
Total number of exercises requiring writing	149	115	115
Percent of underline or circle	30%	33%	33%
Percent of one word	30%	37%	37%
Percent of one sentence	21%	23%	23%
Percent of more than one sentence	19%	7%	7%

*Note: These two workbooks are very similar and use many of the same exercises.

The volume of reading matter seems to have increased over the years.

The Dale-Chall readability levels of good student writing examples seem to have remained at essentially the same level--5-6 grade.

The readability levels of exercise sentences tend to be similar to those for good student writing--these are rather consistent at 5-6 grade level, although there appears to be a drop to grade level 4 for the 1967 book.

The readability levels for the examples from literature and historical works decrease over time, with a 9-10 grade level for the textbook copyrighted in 1952, a 7-8 grade level for those copyrighted in 1955 and 1964, and a 5-6 grade level for the 1967 book.

The findings for Reading Stages are not as consistent as for the readability analyses. Generally, there appears to be some increase over time of the Reading Stages for good student writing. The Reading Stages for the literature examples do not show a trend, however.

The writing tasks show a slight trend, with a lessening (with one exception) of more substantial writing tasks such as paragraphs, themes, stories, and reports from the 1952 book to the 1968 one. There is also an increase in such tasks as underlining, circling, numbering, and inserting a word in the provided space. What seems to be of considerable importance is that most of the writing tasks were of the latter type.

To conclude, our analyses of the sixth grade grammar and composition textbooks do not provide firm evidence of decreasing challenge, possibly since we could not analyze the two oldest books used by the stable SAT cohorts. At the same time, our analyses failed to reveal firm evidence of increasing challenge. Indeed, we found a few indices that the textbooks over the declining years presented a reduced challenge to sixth graders. These indices were the decreasing readability levels of the samples of literary writing in the grammar and composition texts; the rather low Reading Stage Levels of these selections, lower in some books than the Reading Stage Levels of samples of good student writing; and the lessening over time of assignments for writing stories, themes, and reports.

In one of the grammar and composition textbooks published in the 1960s, the tone and style of the books to which many of the declining SAT cohorts were exposed is illustrated by the section on examples of good writing, where the authors note that while the selections should be read and appreciated, they should not be considered examples of the type of writing that students should expect to attain themselves. Thus, it appeared as if students were informed, in subtle ways, that they need not strive too hard.

CHAPTER 6. SIXTH GRADE HISTORY TEXTBOOKS

The sixth grade history textbooks that were analyzed cover a 35 year period--from 1935 to 1970. As can be seen from Table 1, the full range of all six cohort years is included.

The analyses undertaken for these books were similar to the ones for the sixth grade readers. In addition, we included analyses of the questions asked in the texts, manuals, and workbooks. Generally, we sought

to find changes in the challenges students were exposed to over the various cohort years--and to determine whether any relationship exists between these challenges and the SAT scores.

History and other content area textbooks contribute in at least two ways to the abilities measured by a test such as the SAT verbal test. They provide the basic knowledge, information, and tasks, within a particular area of the curriculum. But they also provide the practice in literacy skills necessary for learning in that particular curriculum area. Thus, while for those who have completed their formal education the major objective for reading history (or science) is to know and learn history and science, for children the history and science textbooks perform still another function. They provide the reading practice necessary for developing further the pupil's cognitive, linguistic, and literacy skills. What should the content and difficulty level of history textbooks be if these two purposes are to be fulfilled?

As far as we know, there are no empirical studies on the optimal levels of difficulty for particular kinds of content materials for children of given ages and abilities. Among the measures used by schools and publishers since the 1940s are readability formulas, the same as those used for reading textbooks. We have, therefore, used a readability formula for one of the measures of challenge.

Other measures of challenge used were physical features of the text--the quantity of print as compared to the number of illustrations--Chall's Reading Stage Levels and analysis of the questions for cognitive difficulty.

Findings

The most striking change found was in the use of pictures and illustrations. As can be seen in Table 15, the percent of pages containing pictures (of total reading pages) rose from 46 percent in 1935 to 87 percent in 1970. There was also an increase in the percent of charts, maps, and graphs, but it was relatively small--from an average of about 4 percent for the stable SAT years to about 12 percent for the declining years.

There are changes in the length of the textbooks--in total number of pages and in approximate total number of words--but the trend is not consistent for all six cohorts. There does seem to be, however, some indication that the earlier books were shorter. Then during the "middle cohorts years" there seemed to be an increase in number of words and pages, with a slight decrease in pages and a marked decrease in words in the declining years.

What these changes can be attributed to is hard to say. They may well be explained by the difference in authors. Or they may indeed represent a trend from a more neatly packaged textbook that pupils are expected to read to another conception of a textbook--one that may be a combination of an encyclopedia and a picture magazine.

The analysis of physical features indicates the possibility of some loss in challenge through an increase of pictures. From 1935 to 1970 there has been an increase of pictures to text from 46 percent to 87 percent. What this increase in pictures may indicate about the general style of the history textbooks will be suggested later in an impressionistic report on these same books.

Table 15. Physical and Other Content Features Sixth Grade History Textbooks

Date	1935	1942	1951	1954	1968(65)*	1970
Publisher	Publisher B	Publisher B	Publisher B	Publisher B	Publisher E	Publisher C
Total number of reading pages. . . .	292	368	419	423	378	369
Total number of words (approximation). . .	60,182.2	77,234.3	154,974.3	156,312	88,059	71,841
Total number of picture pages. . . .	134	191	326	326	278	320
Percent of picture pages to total reading pages. . . .	46%	51%	78%	77%	74%	87%
Total number of charts, maps, graphs	8	20	60	60	32	45
Percent of charts, maps, graphs to total reading pages	2.7%	5.4%	14.3%	14.3%	8.4%	12.2%

*The 1968 edition was received instead of the 1965 edition with the publisher's statement that they were the same.

The readability measures do not show a strong trend (Table 16). The scores for the six cohorts tend to be quite similar, with four of the corrected grade levels at 5-6, and the last two cohorts at 7-8 grade level. Thus, it appears from the readability scores that there is little difference in challenge when the declining years are compared to the stable ones. There may, in fact, be an increase in difficulty for the last two cohorts.

The Reading Stage Levels are also consistent throughout the years, although there may be a slight decline for the 1951 and 1954 books.

The question analyses did not produce a recognizable trend from the stable to the declining years (Table 17). But there seems to be some increase in the cognitive demands of the questions beginning with the 1965 text.

Impressionistic View of the Sixth Grade History Textbooks

The following, impressionistic, and admittedly subjective, view of the history textbooks is presented to help explain some of the changes we felt were present but which were not fully revealed by the more objective analyses reported earlier.

Generally, our impressions were that these books had changed considerably over the 35 year period from 1935 to 1970--from relatively small books, straightforward and factual, to books that resemble encyclopedias on the outside and picture magazines on the inside, with illustrations on three out of four pages and a matching, somewhat chatty style. The earliest book, copyrighted 1935, has one small illustration of children appearing at the beginning of each unit. All other illustrations are photographs, reprints of paintings, sculptures, museum displays, and so on. These illustrations and the book itself do not seem to be directed to the child. The style of writing is factual and, as with the illustrations, there seems to be no attempt to be "child-related."

Generally, the 1935 edition seems to be a book meant to be read--small in size and designed to impart information. It does not try to entertain. The style of writing assumes that the child will reach for the material rather than having the material accommodate the child. The book gives the impression of having something important to say. This impression is reinforced by the illustrations and by the questions on the information.

The 1942 book has much the same content as that of 1935. One difference is that this edition begins with a very brief story about a little boy being lost. This seems to be the only reference to the fact that this is a textbook for children. The other material is written in a factual way.

Since a photographic copy was used for the analysis, we are not certain at this time whether most or all of the illustrations were black and white. The book includes many drawings that seem closely related to the text. There are also instructions given to the reader on how to look at the pictures. For "A Desert Well," the reader is asked to notice the dog's load. In a picture of drawing water from a well by a windlass, the reader is asked, "Do you see where the rope twists around the pole?"

The 1942 textbook is still small, although the printing is larger than in the 1935 edition. Directions to the child are given at the chapter's end--topics to talk about, things to do--a trip to the library or museum or copying in manuscript a favorite poem, for example.

In summary, although the purpose is not stated, the 1942 edition also appears to be concerned primarily with imparting information to the child. Some concern is shown for child-centeredness by including the first story about the child being lost. But it quickly relates this experience to early man's need for learning skills of survival.

The 1951 textbook is quite different when compared to the two earlier editions. It is a larger book. The print is larger. There are differences in the style of writing and in the illustrations. Many more illustrations are included, some drawn expressly for the book, and they are quite childlike. There are many full pages of pictures, and even songs.

The book is written to the child. Each unit starts with the story of a child who might have lived in that particular time or location. This might be a story book, a book written to entertain. The information is still included, but it is not as easily found as in the earlier textbooks.

The 1954 textbook is almost identical with the 1951 edition, with some updating of the more recent years of history. The 1968 textbook[6] includes much information for teaching, with extensive directions to the teacher. New vocabulary is listed; films and filmstrips to use are included; teaching procedures are delineated.

The style of the book follows the pattern of the 1951 and 1954 editions. It is an attractive book, large and beautifully bound, with large print and much white space. The illustrations are colorful and include cartoons. For the most part, the pictures were drawn especially for the book and these are very child-centered. The book includes "Studies in Depth" aimed at the more able students, and writing assignments are indicated there.

Generally, the 1968 textbook was written for and to the child. In fact, it seems to do almost everything for the child. Does this perhaps leave little for the child to seek for himself? It is informative, but the information may be lost in the narrative style.

The Teachers' Guide to the 1970 textbook gives a long discourse (42 pages) on the discipline of history and on a definition of social studies, including the values and concepts which guide men's search for understanding. Edwin Fenton, Teaching the New Social Studies: An Inductive Approach, is quoted on teaching values. Concept-seeking strategies are emphasized, involving quotes or ideas from Bloom, Bruner, Goodnow, Austin, Estavan, and Piaget. It is interesting to note, however, that in these instructions to the teacher it is pointed out that although the program lends itself to all levels of written expression, it is not necessary for the student to write in order to succeed.

The 1970 edition is a beautiful book, filled with colorful illustrations. The pictures are not as child-centered as in the textbooks previously discussed. Much has been included, and sometimes the organization is somewhat difficult to follow. It seems not to be a book to be read but to be referred to. It seems more like a digest; pages are broken up by inserting points of emphasis, or points for further study. It seems to try to involve the child in its discourse. The writing does not talk down to the child. The style, in fact, seems to reflect that of the more sophisticated young person of our time.

This is not a story book. It is filled with information. Yet it may have so much in it that readers have difficulty in finding what is important. It seems that the book tries to have something for everybody. And in doing so, it may perhaps miss everybody. Generally, from this text, the child may learn much; specifically, he may learn very little.

Table 16. Dale-Chall Formula Readability Measures and Chall's Reading Stages for Sample Passages from Sixth Grade History Textbooks

Date	1935	1942	1951	1954	1968(65)*	1970
Publisher	Publisher B	Publisher B	Publisher B	Publisher B	Publisher E	Publisher C
Dale-Chall Formula:						
Average sentence length.	15.8	13.0	15.6	15.6	12.7	13.7
Dale score (percent unfamiliar words).	7.4	7.1	8.7	8.7	11.7	12.5
Raw score.	5.6	5.4	5.8	5.8	6.1	6.3
Corrected grade level	5-6	5-6	5-6	5-6	7-8	7-8
Chall's Reading Stages†						
Average stage for passage	2.8	2.8	2.6	2.6	2.8	2.8
Percent of Stage 2 .	11%	21%	29%	29%	8%	10%
Percent of Stage 3 .	89%	75%	71%	71%	92%	90%
Percent of Stage 4 .	0%	4%	0%	0%	0%	0%

*The 1968 edition was received instead of the 1965 edition with the publisher's statement that they were the same.
†Chall's Reading Stages range from 1 to 5 in increasing levels of maturity. (See Appendix B for description.)

Table 17. Analysis of Questions for the Sixth Grade History Textbooks

Date	1935	1942	1951	1954	1968(65)*	1970
Publisher	Publisher B	Publisher B	Publisher B	Publisher B	Publisher E	Publisher C
Average number of questions asked per chapter	13.4	8.5	12.8	12.8	14.6	10.5
Average level of questions asked†	1.24	1.56	1.35	1.35	1.58	1.53
Percent of level 1 questions	76%	44%	65%	65%	52%	57%
Percent of level 2 questions	24%	56%	35%	35%	38%	33%
Percent of level 3 questions	0%	0%	0%	0%	10%	10%
Percent of level 4 questions	0%	0%	0%	0%	0%	0%

*The 1968 edition was received instead of the 1965 edition with the publisher's statement that they were the same.

†Questions are differentiated as to 4 levels of increasing difficulty as follows: Level 1, questions asking who, what, when, where and/or list; Level 2, questions asking why, how, explain and/or describe; Level 3, questions asking to compare and/or contrast; Level 4, questions asking to justify and/or support. (See Appendix B for a fuller discussion.)

We heard recently of the response of a classroom teacher to a parent's inquiry as to why her child does not bring home her history textbook for reading. "Oh," said the teacher, "we don't read our history textbooks, we use them for reference."

Comparable Excerpts from Sixth Grade History Textbooks

As further impressionistic evidence of the changes in the style and tone of the sixth grade history textbooks we present below short excerpts on the same topic--the early training of boys in ancient Sparta--from several of the books analyzed. The first two excerpts are ones that might have been used by the two stable cohorts--those taking SATs in 1947 and 1955. The others might have been used by the pivotal cohort of 1962 and by the declining cohorts of 1972 and 1975. It seems to us that these short selections further illustrate some of the changes discussed above.

1935 Edition (Cohort 1947). At seven years of age a boy was taken away from his home and was put in a camp. There he lived an out-of-door life. He was taught all kinds of exercises, such as running and jumping. Many times he had to go hungry. Often he was whipped severely, but he must never cry out, no matter how great the pain. (pp. 124-125)

1942 Edition (Cohort 1955). At that age every boy had to go to a military camp, and there he had to stay until he was 60. Under such a plan there could be little home life. In camp the boys were drilled for long hours. They were beaten and were made to stand hunger and cold. That was supposed to make them strong. (p. 233)

1951 Edition (Cohort 1962). At the age of seven they left home to live in special camps where all the men, even those who were married, came to eat together. They ate plain food, exercised day after day, and were taught to suffer pain without making a sound. (p.36)

1965 (1968) Edition[7] (Cohort 1972). At seven he was taken from home and placed in a camp. About fifteen boys usually lived together in a camp. Of these the bravest and strongest was chosen captain. Those who did wrong had to take the punishment he set for them. The life of the boys in Spartan camps was very hard. They wore very few clothes and no shoes or hats. After they were twelve, they were allowed only one piece of clothing. (p. 98)

1970 Edition (Cohort 1975). At the age of seven years, boys left their families to live at a school. In school, they played games, developed athletic skills, and had other military training. They had very little training in science or art. The only purpose of education was to prepare boys for a military way of life. (pp. 64-65)

The excerpts from the early textbooks have a keen sharpness and clarity. The readability levels are not appreciably different, yet the excerpts from the later textbooks seem to lose the sharpness of focus and clarity of style by "drawing out" the facts with one short sentence after another.[8]

Also, there seems to be a loss of contrast in describing Spartan life. Could it be that in a sincere attempt to make the past relevant to the modern child, some of the authors of the late editions may have underplayed the differences between past and present--making the textbook perhaps more difficult and less interesting to read and understand and learn from?

In Conclusion

The analyses of the sixth grade history textbooks found a few trends of decreasing challenge from the objective measures. The most definite trend was the consistent increase in pictures over the six cohort years--one and one-half times as many pictures used in the textbooks of the declining as in the stable years.

Some changes were noted in Reading Stage Levels, with higher levels for the two stable years and a decrease in the first two declining years. But there was an increase again in the last two declining years.

Can we say from these various indices that the sixth grade history textbooks have declined in challenge? Perhaps not from the objective measures used here. However, if we take seriously the impressionistic sketches, there appears to be a definite change. The earlier books emphasized information presented in a scholarly manner. In contrast, the more recently published books contain more narrative, more pictures, and in full color. One wonders whether the sixth grade pupils for whom these books are written, are able to sort out the historical facts and interpretations from this seeming abundance.

Is it possible that a more compact, less generously illustrated, history textbook can contribute more to their knowledge and understanding of history? To their linguistic and cognitive growth? To growth of their reading ability? Could it be that with these textbooks--less is more?

CHAPTER 7. ELEVENTH GRADE LITERATURE TEXTBOOKS

The range of books sampled covers the years from 1949 to 1968. Although the original plan called for a book to be sampled for each of the cohort years, we had difficulty in securing some of the books in the limited time available for the study. Therefore, only four of the cohort years are represented--two for the stable years, one for the pivotal year, and one for the declining years.

Because of the inclusive nature of an anthology, containing a vast amount of literature of various types, forms, and periods, we originally attempted to include samples from each of these. We soon found this unworkable since the anthologies contained so many types of literature. We also found from a preliminary analysis of the 1963 textbook that poetry and drama could not be validly checked for readability or reading stage levels. Therefore, they were eliminated from these counts.

Findings

The most striking finding is from the readability analysis, which found great consistency in difficulty over the twenty year period (Table 18). The length of sentences and the percent of unfamiliar words remain almost constant over time.

This lack of change is seen also in other aspects of the anthologies (Table 19). They are relatively similar in total number of reading pages and total number of words. There is a difference, however, in the number

Table 18. Readability of Eleventh Grade Literature Textbooks

Date	1949	1952	1963	1968
Publisher	Publisher C	Publisher C	Publisher C	Publisher G
Dale-Chall Readability Formula				
Average sentence length	23.3	23.6	30.9	24.9
Average Dale score (percent of unfamiliar words)	13.0	13.9	12.9	13.4
Average raw score	6.9	7.0	7.2	7.0
Average corrected grade level	7-8	9-10	9-10	9-10

Table 19. Content Analysis of Literature Textbooks for Eleventh Grade

Date	1949	1963	1968
Publisher	Publisher C	Publisher C	Publisher G
Chall's Reading Stage average	4.0	3.7	3.9
Percent of Stage 2	0%	0%	0%
Percent of Stage 3	14%	41%	24%
Percent of Stage 4	72%	41%	57%
Percent of Stage 5	14%	18%	19%
Narrative Prose			
Total number of selections	39	32	35
*Percent of total book	38%	33%	32%
Expository Prose			
Total number of selections	58	66	60
*Percent of total book	26%	24%	24%
Drama			
Total number of selections	4	2	3
*Percent of total book	8%	6%	8%
Poetry			
Total number of selections	147	150	117
*Percent of total book	19%	23%	20%
Types of prose selections			
Percent narrative.	39%	32%	36%
Percent expository	57%	66%	61%
Percent drama.	4%	2%	3%

*Not mutually exclusive.

Table 20. Features of the Text and Types of Questions in Eleventh Grade Literature Textbooks

Date	1949	1963	1968
Publisher	Publisher C	Publisher C	Publisher G
Total number of reading pages	749	819	732
Total number of words in book (approximation)	452,163	425,254	461,320
Number of words per reading page	604	519	630
Percent of picture pages	15%	30%	22%
Average number of questions per story	6	7	16
*Percent of stories including vocabulary study	100%	80%	80%
*Percent using glossary	50%	0%	0%
*Percent using basewords	40%	0%	0%
*Percent using context	10%	25%	0%
*Percent using definition	0%	75%	100%
*Percent of stories which teach other vocabulary besides content vocabulary	60%	20%	40%
*Percent of stories suggesting additional reading	60%	60%	20%
Types of questions:	N/31	N/34	N/80
Percent of affective	26%	12%	1%
Percent of who, what, when, where	52%	29%	30%
Percent of why, how, explain, describe	6%	41%	58%
Percent of compare, contrast	13%	15%	10%
Percent of justify, support	3%	3%	1%

*Not mutually exclusive.

of pictures, with the lowest percentage in the 1949 book--the one probably used by one of the stable SAT groups. The highest percent of pictures is in the 1963 book, one most likely used by students in the declining SAT years.

With regard to vocabulary study (Table 20), it would seem that the 1949 textbook made the greatest provision for vocabulary study, with 100 percent of the stories containing vocabulary study, compared to 80 percent in the 1963 and 1968 books. Moreover, the 1949 edition had the largest percentage of stories that taught vocabulary other than that presented in the story itself. The 1949 (and the 1963) books suggested additional reading for 60 percent of the stories. This was more than in the 1968 edition, which suggested additional reading for only 20 percent of the stories.

Another change seems to be in the number and type of questions asked following the reading selections (Table 20). The more recent books appear to have more questions. In addition, the quality of the questions asked has changed. In the 1949 book, one fourth of the questions asked were of an affective nature--asking the reader how he or she feels or thinks about the selection. Another half are straightforward, factual questions, asking who, what, where, or when. The 1963 and 1968 books put more emphasis on asking for explanations and/or descriptions, or asking questions of how and why.

Thus it appears that the literature textbooks have been extremely stable in terms of readability, dropping only .3 in raw score on the Dale-Chall formula and not at all on the corrected grade levels.

There are a few signs, however, of greater challenge in the 1949 book --provision for more vocabulary study and for more additional reading and fewer pictures than in the later books. Yet the later books seem to ask students questions that are more demanding.

Which of these contributes more to the kind of abilities needed for a high SAT verbal score?--to the reading of the SAT passages analyzed? It would seem that for at least some of the students, those who have not grown up in a literary atmosphere, a more extensive vocabulary and a greater exposure to literature through reading more than the brief selections in the anthologies might be more "nourishing" than discussing at great depths stories that are on a level of reading generally below that of most eleventh graders.

What of the consistently low readability levels of the books--at the stable years and at the declining ones? They all seem to test at about the ninth grade level. Why ninth grade level for eleventh graders?

To gain some insight into these questions, we took a further look at selections included in the anthologies and their authors. All the anthologies appeared to be similar in content and style. Indeed, the distribution of narrative and expository prose, drama, and poetry were found to be similar within each year analyzed (Table 19).

The formats of the books are also basically similar. There is some variation in the placement of poetry and prose, with some books interspersing them and some books keeping them separate. All the books have sections on modern short stories, modern nonfiction and historical periods of literature from the writings of the Puritans and early colonists and revolutionists through the literature of the expanding west and Civil War, up to the present time. There is some difference in emphasis placed on the literature of the influence and growth of the west, with

some of the books keeping this as a separate section and others including it under the section on the modern temperament. Within these periods of historical literature, the selections are relatively similar as to type and style, with only some variation in the choice of authors. Among the authors who appear in all the books analyzed are Jonathan Edwards, William Byrd, Benjamin Franklin, Thomas Jefferson, Washington Irving, Edgar Allan Poe, Ralph Waldo Emerson, Henry David Thoreau, and Mark Twain.

There is a greater variation occurring in the choice of authors and their works in those sections dealing with modern writing--fiction, articles, and essays. Readability measures were obtained for these portions of the anthologies and are presented in Table 21. From the table we note an even greater consistency, with three of the four books having a raw score of 6.6 and all four being on a 7-8 corrected grade level. Thus, the modern writing selections are on an even lower readability level than the total collection which averaged about ninth grade level for the four books.

The Reading Stage Level[9] estimates do not seem to vary much either. When the full anthologies are considered (Table 19), the 1949 book appears to be on a somewhat higher Reading Stage Level. The section on modern writing varies in a similar manner (Table 21). Here, too, as for the total anthologies, it appears as if the Stage Level drops somewhat when the modern literature is considered apart from the remaining selections.

These observations lead one to speculate about the anthologies. Is it that modern writers write on a lower readability level than their predecessors? Or is it that the editors of the anthologies selected those examples of prose that they believed would be of interest to and readable by the students for whom they were selected? Or is it that literary works do not fit the readability measures that were originally developed for expository writing? There is more than a slight suspicion that these may all be part of the answer. Various readability checks of fiction and non-fiction have found that fiction has lower readability scores. Indeed, studies of the readability of best sellers have reported an average of about 7-8 grade readability level. Yet one may still ask whether such literature can provide the kind of exercise that seems to be needed to read the selections included in the SATs analyzed by us which range in difficulty from 11-12 grade level to 13-15 grade level, quite above that of the selections sampled from each of the anthologies.

CHAPTER 8. ELEVENTH GRADE GRAMMAR AND COMPOSITION TEXTBOOKS

The eleventh grade grammar and composition textbooks analyzed were published from 1950 to 1973. The 1969 and 1973 textbooks were published by the same company, and were found to be identical except in the treatment of the discussion of standard and substandard English.

It should be noted that only one of the stable cohorts was represented by an analyzed book, the one published in 1950, representing the 1955 SAT cohort. No textbook in grammar and composition was available for the first stable cohort year of 1947.

Table 21. Readability of Sections of "Modern Writings"* In the Literature Anthologies

Date	1949	1952	1963	1968
Publisher	Publisher C	Publisher C	Publisher C	Publisher G
Dale-Chall Readability Formula				
Average sentence length.	20.6	18.4	27.1	20.8
Average Dale score (percent unfamiliar words).	10.4	13.5	10.6	12.5
Average raw score.	6.3	6.6	6.6	6.6
Average corrected grade level.	7-8	7-8	7-8	7-8
Chall's Reading Stage average	4.0	NOT COMPLETED	3.4	3.9
Percent Stage 3.	0%		54%	25%
Percent Stage 4.	100%		45%	63%
Percent Stage 5.	0%		0%	12%

*Modern short stories, modern articles and essay, and new directions in prose

The same kinds of analyses were made for the eleventh grade grammar and composition textbooks as for the sixth grade. To estimate the degree of challenge, we analyzed the examples of good writing from students and of good writing from literary and historical writing by the Dale-Chall readability formula and by the Chall Reading Stages. The literary examples were also rated on a three point scale of content difficulty and on a three point scale of language complexity. (See Appendix for additional detail on these measures.)

Analyses were also made of general features of the books (length, number of words, number of pictures, and so on) and on the amount and kinds of writing assigned to students.

Findings

The findings should be interpreted as merely suggestive, since only one of the textbooks was available to represent the stable SAT years and the 1965 and 1973 books turned out to be essentially the same.

The most definite trend appears to be in the reading stage levels for both the student writing examples and the good literary examples (Table 22). For both of these there was an increase in reading stage level for the two declining years as compared to the stage levels for the stable years. The same trend was found for the linguistic and cognitive levels of the literary samples.

The trends for the readability of student writing samples (Table 22) are not as consistent, although the Dale-Chall formula seems to show an increase from 1967 to 1973--from a corrected grade level of 7-8 to 11-12. The readability levels for the literary samples and for the exercise samples do not show a consistent trend.

Thus it would appear that few trends could be found, but where there is change over time, some of it seems to be in the direction of more rather than less challenge, as we go from the stable to the declining years.

The analysis of features of the book also found few trends (Table 23). The 1969 and 1973 books were the longest compared to the books representing the stable period. But the decreased size in between makes any observation about a trend questionable.

Proportion of pictures to text seems to have decreased. Indeed, the three books representing the declining years had no pictures, while in the 1950 stable year edition, the pictures were 16 percent of the text pages. The vocabulary exercises showed an increase from 1950 to 1973. All of these indices point to some increase in challenge.

A few measures, such as the percent of exercise pages, may point to a loss of challenge, since there appears to be a steady decrease in the number of exercise pages.

Few patterns were found in the amount of writing required by the exercises in the books (see Table 24). Again, the differences may stem as much or more from preferences of the authors and publishers as from general historical changes. The 1969 and 1973 books have the greatest percentage of underline and one-word answer exercises, and the lowest percentage of exercises requiring extensive writing. The 1967 book requires the greatest amount of writing.

If we compare the 1950 text (stable SATs) with the 1969 and 1970 (declining SATs) and omit the 1967, we can detect a decrease in the more

Table 22. Readability Measures and Chall's Reading Stages and Linguistic and Cognitive Levels for Eleventh Grade Grammar and Composition Textbooks

Date	1950	1967	1969	1973
Publisher	Publisher D	Publisher A	Publisher C*	Publisher C*
Student Writing Examples				
Dale-Chall Readability Formula				
Average sentence length	14.2	14.5	21.2	21.2
Average Dale score (percent unfamiliar words)	13.2	10.8	22.2	22.2
Average raw score	6.4	6.0	8.2	8.2
Average corrected grade	7-8	7-8	11-12	11-12
Chall's Reading Stage average.	2.2	3.0	2.8	2.8
Percent of Stage 2.	75%	25%	25%	25%
Percent of Stage 3.	25%	50%	75%	75%
Percent of Stage 4.	0%	25%	0%	0%
Literary writing examples†				
Dale-Chall Readability Formula				
Average sentence length	19.3	25.2	28.0	28.0
Average Dale score (percent unfamiliar words)	17.0	21.8	12.5	12.5
Average raw score	7.3	8.2	7.0	7.0
Average corrected grade level	9-10	11-12	9-10	9-10
Chall's Reading Stage average.	3.0	3.2	3.2	3.2
Percent of Stage 2.	0%	0%	0%	0%
Percent of Stage 3.	100%	75%	75%	75%
Percent of Stage 4.	0%	25%	25%	25%
Linguistic level - average	2.0	2.5	2.2	2.2
Cognitive level - average.	1.7	2.0	2.2	2.2

(Continued)

Table 22 (Continued)

Date	1950	1967	1969	1973
Publisher	Publisher D	Publisher A	Publisher C*	Publisher C*
Exercise sentences				
Dale-Chall Readability Formula				
Average sentence length	16.5	14.0	17.8	17.8
Average Dale score (percent unfamiliar words)	16.0	10.5	18.5	18.5
Average raw score	7.0	6.0	7.4	7.4
Average corrected grade	9-10	7-8	9-10	9-10

*The 1969 and 1973 editions were similar except for a chapter on standard English usage.
†Note: Only three examples of literary "good writing" could be found for 1950 edition. Most of the examples of literary "good writing" were sentence quotations only.

Table 23. Physical and Other Content Features Eleventh Grade Grammar and Composition Textbooks

Date	1950	1967	1969	1973
Publisher	Publisher D	Publisher A	Publisher C*	Publisher C*
Total number of reading pages	474	419	695	695
Total number of words (approximation)	128,444	110,880	173,448	173,448
Number of words per reading page (approximation)	271	265	250	250
†Percent of picture pages	16%	0%	0%	0%
†Percent of pages of vocabulary	16%	28%	25%	25%
†Percent of pages of exercises	52%	41%	33%	33%
†Percent of pages of sentences, paragraphs, themes	20%	28%	25%	25%

*The 1969 and 1973 editions were similar except for a chapter on standard English usage.
†Not mutually exclusive.

Table 24. Degree of Writing Required in Eleventh Grade Grammar and Composition Textbooks

Date	1950	1967	1969	1973
Publisher	Publisher D	Publisher A	Publisher C*	Publisher C*
Verbal exercises	15%	2%	13%	13%
Written exercises				
Underline, circle, punctuate, or capitalize for answer	13%	10%	17%	17%
One word answer	19%	23%	37%	37%
One sentence answer	29%	20%	20%	20%
More than one sentence answer	7%	13%	4%	4%
Paragraph	7%	13%	4%	4%
Theme, story, report or letter	10%	19%	5%	5%
Combined types of exercises				
Underline, etc and one word answers	32%	33%	54%	54%
Multiple writing answers-more than one sentence, paragraphs and themes	24%	45%	13%	13%

*The 1969 and 1973 editions were similar except for a chapter on standard English usage.

demanding writing assignments and an increase in the less demanding. Thus, we find in Table 24 a decline from 24 percent to 13 percent of writing that involves more than one sentence, or paragraphs, or themes. Writing exercises asking students to underline or to write one word increase from 32 percent in 1950 to 54 percent in 1969 and 1973.

To conclude, our analyses of the eleventh grade grammar and composition textbooks found few consistent trends, owing partly to the fact that only one textbook was available for the stable SAT years and perhaps partly to the fact that the books for the declining years from the same publisher turned out to be almost identical.

Among the few patterns found, some seemed to confirm the decreasing challenge hypothesis--decrease in number of exercises over time and a decrease in the percent of demanding writing assignments.

However, other trends seemed to support a hypothesis of increasing challenge--an increase in reading stage level and an increase in the linguistic and cognitive levels of the literary samples.

Thus, no definite conclusion about the best-selling eleventh grade grammar and composition books can be drawn at this time.

CHAPTER 9. ELEVENTH GRADE HISTORY TEXTBOOKS

Five eleventh grade history textbooks published between 1961 and 1970 were analyzed[10] (two representing the pivotal year and three copyrighted during the declining years). Unfortunately, the two books representing the stable years were not available for analysis in time to be included in this report. Thus, the main purpose--a comparison between textbooks most probably used during the stable and during the declining years--could not be realized. We present our findings for the declining years only--a period of nine years.

Overall, few trends are evident for features of the books (Table 25). The length of the books and the number of words remain fairly stable. The number of pictures also remains stable for one publisher although the pictures increase by 20 percent for the other publisher. Overall, the pictures seem to take up a major portion of the text, although the extent is somewhat below the 80 percent of pictures in the sixth grade history texts of the same copyright years. Thus, since we had, for the sixth grade textbooks, data for the two stable periods indicating substantially fewer pictures, it is likely that the same will be found for the eleventh grade history textbooks published during the stable years.

The readability levels were also quite stable over the nine year period. The small differences found may in fact reflect the authors' styles, rather than trends. Generally, the books measured at 9-10 or 11-12 corrected grade levels with the two latest books (those published in 1969 and 1970) at the lower end, 9-10 grade levels (Table 26).

The findings for Reading Stages (Table 26) also seem quite stable over the nine year period, with a noticeable increase in the average for the 1970 book. The difference seems more striking when we note the increase in samples rated at Stage 4 and Stage 5. One wonders whether this is a reflection of the emphasis on concepts and discovery learning noted as a primary objective in some of the more recent grade 6 history textbooks.

Table 25. Physical and Content Features of Eleventh Grade History Textbooks

Date	1961	1961	1964
Publisher	Publisher C	Publisher F	Publisher F
SAT cohort year	1962	1962	1967
Total number of reading pages	821	655	655
Total number of words	331,550	282,072	277,949
Average number of words per reading page	624	644	653
Percent of picture pages	42%	61%	69%
Percent of charts, maps, graphs	9%	16%	16%

Table 26. Dale-Chall Readability Formula Measures and Chall's Reading Stages for Passages in Eleventh Grade History Textbooks

Date	1961	1961	1964	1969	1970
Publisher	Publisher C	Publisher F	Publisher F	Publisher C	Publisher F
SAT cohort year	1962	1962	1967	1972	1975
Dale-Chall Readability Formula					
Average sentence length	20.9	21.5	20.9	20.9	21.9
Average Dale score (percent of unfamiliar words)	19.3	22.5	21.6	19.9	19.9
Average raw score	7.7	8.3	8.1	7.8	7.9
Average corrected grade level	9-10	11-12	11-12	9-10	9-10
Chall's Reading Stage average	3.2	3.5	3.5	3.2	3.9
Percent of Stage 3	80%	50%	80%	80%	25%
Percent of Stage 4	20%	43%	20%	20%	58%
Percent of Stage 5	0%	7%	0%	0%	17%

The findings regarding the cognitive level of questions asked also point to consistency among the five books over the nine year period (Table 27) With the exception of only one of the five books, all have at least 80 percent of their questions on the first level--that is, largely factual. Most of the remaining questions are rated as level 2, (15 percent), with fewer than 10 percent of the questions rated as levels 3 and 4. The various textbooks are also quite consistent with regard to assignments in vocabulary and writing.

In conclusion, it appears that the five history textbooks copyrighted between 1961 and 1970 are quite consistent on our various indices of reading, linguistic, and cognitive difficulty. Overall, they seemed to offer similar challenges to the SAT cohorts who might have used them and who took the SAT during the pivotal and declining years.

Since we cannot make a comparison with textbooks from the stable years, it is difficult to answer the basic question of our inquiry--was there a decline in challenge from the stable to the declining years?

For this we propose one objective measure that may prove significant--the number of pictures. In these eleventh grade history textbooks, the average proportion of pictures is considerable--almost 60 percent. There is some evidence that this proportion was lower for the pivotal year (Table 25).

Thus, the eleventh grade history textbooks may show trends similar to those of the sixth grade history textbooks--a decline in challenge from the stable to the declining years. With an increasing amount of space devoted to pictures, it is important to ask whether they are as essential as currently believed.

The readability scores also raise questions (Table 26). It should be noted that three of the five books are rated at 9-10 grade levels. Only two are at 11-12 and these are at the low end of the category. (The total range in raw scores for all five books is only .6.) One wonders why the levels are so close? It would be instructive to analyze the textbooks representing the stable years. Would the readability scores be higher than for those representing the declining years?

We suspect that the general lack of trends in our measures may be explained by the fact that we have analyzed only that part of the trend that represents a plateau in the general decline of challenge. This is indicated by the stable and rather high proportion of pictures, the rather stable and generally low readability levels, and the consistent and rather low cognitive levels of the questions.

At the same time, there seem to be no signs of increased challenge over the nine years. The only evident increase was in Reading Stage level for the 1970 textbook.

We conclude, therefore, that although we do not at this time have the data to determine whether the extent of challenge decreased during the declining relative to the stable years, there are several indications that additional analyses might be worthwhile.

As further evidence that the hypothesis of decreased challenge during the declining years should not be rejected, we present the following impressions gained from studying the five eleventh grade history textbooks of the declining years.

Table 27. Questions and Followup Activities in Eleventh Grade History Textbooks

Date	1961	1961	1964	1969	1970
Publisher	Publisher C	Publisher F	Publisher F	Publisher C	Publisher F
Average number of questions asked per sample chapter	17.5	47.5	47.5	8.5	41
Percent of number 1* questions	82%	85%	85%	56%	86%
Percent of number 2* questions	16%	12%	12%	29%	7%
Percent of number 3* questions	1%	3%	3%	9%	6%
Percent of number 4* questions	1%	0%	0%	6%	1%
Is vocabulary taught?	Yes	Yes	Yes	Yes	Yes
Is further reading suggested?	Yes	Yes	Yes	Yes	Yes
Is further writing suggested?	Yes	Not specified but inferred	Yes independent activities	No	No

*Number 1 questions ask who, what, when, where, list
Number 2 questions ask why, how, explain, describe
Number 3 questions ask compare, contrast
Number 4 questions ask justify, support
(See appendix B for further discussion.)

Impressionistic Views

All the books are similar in physical features and content. They are attractively bound, comparable in size, format and print. One of the earlier publications is slightly smaller, allowing less white space on the pages. Essentially, though, the books seem quite similar. The number of illustrated pages is fairly consistent. Although one of the earlier books contains 42 percent picture pages in relation to total reading pages, the other books range from 60 percent to 69 percent. The illustrations are photographs and reprints from historically significant paintings and art objects. One publisher included drawings made expressly for the book. The illustrations appear to be predominantly black and white rather than full color.

All the books contain little vignettes or capsule studies on historical persons or events. Historical documents such as the Declaration of Independence and Supreme Court Decisions are also included. Suggested additional readings for students are found in each book and the latest publications contain bibliographies for teachers.

The writing style of the books is narrative. One author notes that this style is used to enhance the presentation of history as a good story. The idea of history as a story is further emphasized in the use of suspense to hold the reader's interest.

The more recent authors refer to the need for innovative teaching, quoting such authorities as Edwin Fenton, F. W. Maitland, and Jerome Bruner.

The impression one gets in examining the purposes and rationales of the books is that more attention is given to presenting a general broad overview rather than a basic core of knowledge. Indeed, one publisher states specifically that his book presents history from such a broad perspective.

In summary, these eleventh grade history textbooks seem similar. They appear to give a broad direction to the study of history with an emphasis on general understanding rather than on specific factual knowledge.

CHAPTER 10. SUMMARY, CONCLUSIONS, RECOMMENDATIONS

At the request of the Advisory Panel on Score Decline, we undertook an exploratory study of the relationship between textbooks and SAT verbal scores. Essentially we sought to find out whether the textbooks had changed during the score declining years (1967 to 1975), and if so, whether these changes were related to the SAT verbal score declines.

To study the relationship we analyzed the reading selections from six SATs, two from the stable years (1947 and 1955), one from a pivotal year (1962), and three from the declining years (1967, 1972, 1975). To study the nature of the textbooks during this period of nearly 30 years, we analyzed the most widely used textbooks within selected curriculum areas, grades, and publication dates. The disciplines and grades sampled were: reading, grades 1 and 6; grammar and composition, grades 6 and 11; history, grades 6 and 11; literature, grade 11. The publication dates

selected were those most likely used by pupils who took the SATs during the six years selected for the study: 1947, 1955, 1962, 1967, 1972, and 1975. The research design simulated a series of six longitudinal studies, with six hypothetical cohorts who entered grade 1 during specified years, were exposed to specified best-selling textbooks while they were in grades 1 to 11, and took the SATs during the six specified dates noted above.

The various textbooks (35 textbooks and approximately 20 workbooks and teachers' guidebooks) and SAT reading passages were analyzed using various indices of difficulty and challenge--the Dale-Chall Readability Formula for level of reading comprehension difficulty, Chall's Reading Stages for level of linguistic and cognitive maturity, a rating scale for assessing question difficulty adapted from Bloom's Taxonomy, and so on. The textbooks were also analyzed for various physical and content features such as length of book (approximate number of pages), ratio of pictures to text, extent of narrative in relation to expository prose, use of original literature, and the like.

Where the necessary manuals and workbooks were available, we analyzed the kinds of things pupils are asked to do in their workbooks and teachers are asked to do in the teachers' guidebooks.

Not all of the textbooks and SAT passages were analyzed by all of the measures. Some of the indices were standard measures such as the Dale-Chall Formula, and various vocabulary measures used (used particularly for the early readers). Other measures, such as the Chall Reading Stages and the Question Complexity Rating Scale have theoretic validity, but have not been subjected to the usual tests of reliability and validity. Still others, the measures of various physical features and the emphasis given to various activities in the workbooks and teachers' guidebooks, for example, had been used previously by the principal investigator (Chall, 1967).

This was an exploratory study with many limitations. It was especially limited by the use of only a small sample of textbooks (35 plus 20 workbooks and manuals). It would have been helpful to sample more books from more grades. Another limitation was the unavailability of several of the textbooks used by the stable cohorts of 1947 and 1955. The publishers no longer had copies in their archives.

Summary of Findings

In spite of these limitations, we present our findings which should be viewed as highly suggestive, but also as deserving serious consideration and continued study.

1. There seems to be rather compelling evidence that a positive relationship exists between the level of challenge of textbooks used by pupils and the scores they achieve on the SAT-verbal tests. The relationship seems to be stronger for the elementary as compared to the high school years, and for the earlier as compared to the later elementary grades.

Thus, when we map the most widely used first grade reading programs over a 30 year period (representing the SAT cohorts from 1947 to 1975), we find that those cohorts that were in first grade when the reading programs were more challenging did better on the SAT 10 years later. Those who were in first grade when the reading programs had become less challenging, had lower SAT scores 10 years later.

The evidence for the sixth and eleventh grades was not as clearcut as for the first grade. But here, too, there were signs that various measures of lessening of challenge were related to the declining SAT scores. The sixth grade reading textbooks, for example, had a lower percent of original selections from literature, more stories written specifically for the readers, a lower ratio of expository to narrative prose--all indices of a decrease in challenge--during the years preceding the decline in SAT scores. For the sixth grade history books there were also signs of a decrease in challenge during the declining score years as compared to the stable years. In general, the sixth grade history textbooks in use during the declining years seemed almost to change their purpose. From books that were meant to be read, they seem to have become encyclopedic magazines intended to be used for browsing or for reference.

The grammar and composition books present a somewhat similar picture. Although some of the measures show no appreciable change from the stable to the declining years, there are signs suggesting a decline in challenge. Perhaps one of the most important findings is the general low demands on pupils to write, during even the stable years and during the declining score years.

The findings for the eleventh grade textbooks are quite similar to those for grade 6. Some of the indices also reveal a possibility of a relationship between the measures of textbook challenge and SAT scores.

The issue of level of reading difficulty will be discussed later after findings on the SAT selections are discussed.

Why were the relationships more definite for grade 1? And less clear for grades 6 and 11? Several explanations come to mind. One is that all the first grade textbooks--from 1930 to 1962--were from one publisher and from one discipline--reading. The sixth and eleventh grade textbooks covered several disciplines and several publishers, and for some of the disciplines, the earlier textbooks representing the stable years were not available for analysis.

One might also explain the difference by a developmental scheme of reading. According to Chall's scheme of reading development, Stage 1 (which includes most children in grade 1) usually requires direct instruction since most children cannot generate their own rules of correspondence of letters and sounds (Chall, 1976). The children are thus more dependent on their teachers and on their textbooks than in later grades. Once the children have mastered the basic decoding skills and can read simple books on their own, much of their learning can be self generated. In the sixth grade, good readers who have access to a library probably read more words, on a higher readability level, in a month than they read all year in a textbook. Even if their textbooks offer limited challenge, their own free reading can make up for some of the difference.

2. Our readability analyses of the SAT reading passages revealed a decrease in difficulty from the two stable years (1947 and 1955), through the pivotal year (1962), to the declining years (1967, 1972, 1975). Indeed the SAT reading passages of the last declining year studied, 1975, had the lowest readability scores of all years analyzed.

The question analysis revealed an opposite trend. The questions on the later tests seemed to require higher levels of thought. Thus, it appears that as the passages became easier the questions became harder. The exception is in 1975. Here both the passages and the questions seemed to be easier.

3. Our analyses also revealed a possible gap between the difficulty of the SAT passages and the difficulty of the eleventh grade textbooks. The SAT passages were the most difficult of any of the materials analyzed--more difficult than any of the textbooks. Two of the SATs were on a 13-15 grade level and four on an 11-12 grade level.

The history, literature, and grammar and composition eleventh grade textbooks had an overall readability level of 9-10 grade level. Although the Dale-Chall grade levels cannot be used as standards of difficulty appropriate for the different grades, it is still valid to ask what effect such a gap may have. Indeed, if our declining challenge hypothesis has some merit, then it might be logical to ask: Can pupils who are not exposed in their classrooms during their eleven years of schooling to reading matter as difficult as the SAT reading selections be expected to do well on them? Would not they have a better chance if they were given such practice in their various reading assignments?

Of course, by the eleventh and twelfth grades, pupils bound for college are reading on their own (or should be) on higher and on lower levels than the textbooks which are usually written to suit most of them on that grade, including the noncollege bound. But it would seem that the gap between the reading difficulty of their textbooks and the SAT selections would present a greater problem to the new college bound students--those who a decade ago would not enter college. Thus it would appear that the gap between the challenge of textbooks and SAT selections might be greater for those students who do not come with the traditional, more academic background.

It is well to clarify our concern with success on the SAT reading passages. What does success on these difficult selections mean, besides a higher SAT verbal score? the SAT reading selections (and questions) seem to represent the kind of reading required of students in most college work requiring serious reading (Perry, 1968; Chall, 1976). In that sense, can the SAT passages serve also as criteria for reaching that stage of reading maturity necessary for learning in college from textbooks and other printed sources?

4. There are signs in our data of a return to a greater challenge in the textbooks, particularly at the elementary level. Thus, the first grade readers began to show some signs of increasing difficulty in 1962. In 1971 the signs were more definite.

A trend toward greater challenge is found also in the 1965 edition of the sixth grade reader. Many of the indices point to a more difficult reader.

The return of a greater challenge in the reading programs, particularly for grade 1, already seems to have some observable consequences. Could it be that these more demanding reading programs are related to the fact that the early grades, 1 to 4, have not shown the recent decline in achievement scores? (Harnischfeger and Wiley, 1976.) Indeed, increasingly one hears that reading achievement scores for these grades have improved. Thus, a recent announcement from the National Assessment of Educational Progress has reported that the fourth grade reading assessment found the pupils in 1975 achieving better than the fourth graders of five years ago.

If the difficulty levels of the textbooks for the upper elementary grades and high school increase as well, a tenable hypothesis might well be that SAT scores may begin to increase in the early 1980s. Perhaps in 1981? 1982?

At the same time, it would be well to be on the alert for possible negative effects of "more difficult" textbooks on the students who are not college bound and who do not take SATs or other college entrance examinations.

5. We found what appeared to be a particularly low level of challenge in writing. Generally, the assignments in the reading, history, and literature textbooks asked mostly for underlining, circling and filling in of single words. Few assignments asked students to write a paragraph, story, letter, or theme. Even the grammar and composition textbooks, ostensibly designed to teach writing, seemed to spend little time on it.

Interpretations and recommendations

Our examination of textbooks and SAT scores suggests that an essential factor in their relationship is proper challenge. Additional research is of course needed to confirm or disconfirm our findings and hypotheses. However, it is interesting to note that the concept of proper match and proper challenge has been a theoretical and empirical concern of the most eminent psychologists and educators--developmental and educational psychologists and researchers. E. L. Thorndike, I. Lorge, A.I. Gates, J. Piaget, E. Dale, for example.

We need a reevaluation again of what constitutes proper challenge for the children of today, their teachers, and their schools. With universal availability of TV and books, better food, better care, and parents who continue to be more highly educated, it appears that some of the prescriptions about what constitutes proper challenge and what constitutes frustration need rethinking. Such reevaluation would be of help to educators and publishers who are often perplexed by the criteria they think others expect them to use. A reevaluation should also help classroom and remedial teachers who seem to accept the generalization that the easier the book, the more successful the child, the more effective the learning.

We need also to rethink the place of content area textbooks. At what level of readability should they be? Here, too, there has for at least the past 50 years been an assumption that the easier the book the better, provided that enough subject matter is included. If our hypothesis has merit, then it would seem that such books need to fulfill yet another purpose in addition to conveying information. They need to teach the process of getting such information from books--and should provide the practice needed to reach, ultimately, the level of maturity assumed by the SAT reading selections and by college reading requirements.

A Concluding Note:

We should like to point out that our study of textbooks does not rule out the possibility of other factors influencing SAT scores--a general decline in reading and particularly the reading of classics and other challenging literature, the increase in enrollment in the "softer" electives with a loss in enrollment in difficult English courses. These

may, in turn, have been reactions to the time-consuming viewing of television. Nor do we rule out the possibility that all of these factors are related to the challenge of textbooks and to SAT verbal scores. Our guess is that all are probably interrelated.

In such cases, the task of educational reform seems extremely difficult and almost impossible. Yet our findings, although far from being definitive, do suggest a way to effect a change. The school textbook, although in modern schoolrooms a rather prosaic learning tool, seems, according to our study, to exert an important force on pupil's linguistic skills. The recent increase in reading achievement of children in Grades 1 to 4 following an increase in the challenge of their reading textbooks suggests that attention to optimal challenge of textbooks can go far toward increasing the reading ability, and hence the verbal SAT scores of those who take the test.

It should be recognized that while our findings suggest that the current textbooks may not be sufficiently challenging (particularly those for the high school), it cannot be concluded that all textbooks now published are too easy. For such a statement, more systematic research will need to be undertaken if educational research is to be more than reactive. Earlier recommendations for greater ease of textbooks, without sufficient research on standards for optimal difficulty, probably contributed to the present situation. Therefore, merely increasing the level of challenge, without supportive research may also fail to produce the desired results. Textbooks appear to be so important in the learning of students that full knowledge of optimal challenge is a necessity. Finally, since textbooks appear to have a significant influence on verbal learning, they should be considered as possible direct means of educational innovation and improvement.

NOTES

1. Although the SAT scores covered those who took the examination in the junior and senior years, the textbooks analyzed were from the eleventh rather than the twelfth grade. This was done to permit the textbooks to have a greater impact on the SAT scores, particularly since a substantial proportion of students take the SAT at the end of the eleventh grade or early in the twelfth grade.
2. Author's note: The designation "pivotal year," is given to those years that seem to mark a turning point in score changes. Prior to these years, the scores either increased or remained stable. Following those years, the scores started a period of decline.
3. The mean SAT scores we used for the selection of the stable and declining years came from the College Entrance Examination Board's "Table I. Means, Standard Deviations, and Number of Cases for all Candidates Taking the SAT, by Year 1956-57 through 1974-75" and "Table 1. Candidate Performance on College Board Tests, 1941-59."
4. The cooperation received from the publishers was extraordinary. Not one refused to send us their materials, and some of it was nearly 40 years old. When we could not obtain a book it was because none was available in the publishers' archives. Indeed, when only one copy was

available and we could not travel to the publishers' library to analyze it, a photographic copy was sent to us. To date, no bill has been received. All the publishers were greatly interested in the study and expressed their desire to receive copies of the report when available.

5. The textbook copyrighted 1967 based on transformational grammar has a lower percentage of this type of writing and a higher percentage of the writing considered more demanding.

6. In response to our request for the 1965 textbook, a 1968 edition was received with thepublisher's statement that these books were the same. Therefore, the 1968 edition was analyzed as the representative book, used by the 1972 cohort, for the sixth grade.

7. For explanation of two dates see footnote to Table 15.

8. This is comparable to our findings for sixth grade readers where although the Dale-Chall scores remain essentially the same, the percent of unfamiliar words increases while the average sentence length decreases (Table 6).

9. For the Reading Stage analysis, each selection was looked at as a whole. Determination of Reading Stages in literary fiction was difficult. We considered those stories which dealt with conflict on a level deeper than the surface plot as being at least a Stage 4.

10. Because it was not clear which were the best-sellers for these years, two books published in 1961 and two books--one published in 1969, and one in 1970--by different publishers, were analyzed.

APPENDIX A

Table I. Basic Data on Dale-Chall Readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1947 (Form VSA 3)

Passage number	1	2	3	4	5	6	7	8	Average
Average sentence length	29	30	19	41	26	34	31	40	31.3
Dale score (percent unfamiliar words)	20	17	30	26	35	21	22	22	24.1
Raw score	8.23	7.81	9.32	9.74	10.45	8.64	8.65	9.40	9.03
Corrected grade level	11-12	9-10	13-15	13-15	16+	11-12	11-12	13-15	13-15
Chall Reading stage level of Passage*	4	5	5	5	4	4	5	5	4.6
Harvard Readability Assessment Scale†	9	10	9	10	9	9	10	10	9.5
Number of words per passage	258	279	354	293	205	206	218	279	261.5
Number of questions per passage.	5	6	6	7	6	5	5	5	5.6
Average degree of knowledge required by questions**	1.8	2.3	2.2	3.0	2.0	1.8	3.6	3.4	2.5

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)

†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty, equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)

**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See appendices for description.)

Table II. Basic Data on Dale-Chall Readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1955 (Form DSA 2)

Passage number	1	2	3	4	5	6	7	8	9	Average
Average sentence length.	35	18	26	28	25	29	28	25	44	28.7
Dale score (percent unfamiliar words) . .	23	29	25	30	28	26	32	32	25	27.8
Raw score	9.00	9.11	8.87	9.76	9.30	9.18	10.08	9.93	9.77	9.44
Corrected grade level. .	13-15	13-15	11-12	13-15	13-15	13-15	16+	13-15	13-15	13-15
Chall Reading Stage Level of passage* . .	4	3	3	4	4	5	4	5	5	4.1
Harvard Readability Assessment Scale† . .	9	8	7	9	8	10	8	10	10	8.8
Number of words per passage	315	267	211	262	242	293	225	294	241	261.1
Number of questions per passage	5	7	5	6	5	5	4	6	4	5.2
Average degree of knowledge required by questions**. . . .	2.0	2.4	2.2	2.8	2.8	3.4	3.0	2.3	3.0	2.7

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)

†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)

**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See Appendices for description.)

Table III. Basic Data on Dale-Chall Readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1962 (Form KSA 15)

Passage number	1	2	3	4	5	6	7	Average
Average sentence length	17	32	23	34	26	26	28	26.6
Dale score (percent of unfamiliar words)	5	32	28	31	20	26	31	24.7
Raw score	5.27	10.28	9.20	10.22	8.08	9.03	9.92	8.85
Corrected grade level	5-6	16+	13-15	16+	11-12	13-15	13-15	11-12
Chall Reading Stage Level of passage*	3	4	4	5	4	4	4	4.0
Harvard Readability Assessment Scale†	6	9	9	10	7	8	9	8.3
Number of words per passage	604	95	355	340	408	363	370	362.1
Number of questions per passage	5	5	5	5	5	5	5	5.0
Average degree of knowledge required by questions**	2.0	2.6	3.2	3.2	2.2	2.8	2.4	2.6

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)

†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)

**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See appendices for description.)

Table IV. Basic Data on Dale-Chall readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1967 (Form PSA 13cp)

Passage number	1	2	3	4	5	6	7	8	9	Average
Average sentence length	25	26	12	26	30	22	48	40	24	28.1
Dale score (percent unfamiliar words) . .	23	37	13	25	23	24	19	24	23	23.4
Raw score	8.51	10.77	6.28	8.87	8.76	8.52	9.02	9.41	8.46	8.73
Corrected grade level .	11-12	16+	7-8	11-12	11-12	11-12	13-15	13-15	11-12	11-12
Chall Reading Stage Level of passage*	4	4	4	4	4	4	5	4	4	4.1
Harvard Readability Assessment Scale† . .	9	9	8	9	9	9	9	9	9	8.8
Number of words per passage	417	380	567	362	504	526	426	474	493	461.0
Number of questions per passage	5	5	5	5	5	5	5	5	5	5.0
Average degree of knowledge required by questions**	3.0	3.2	2.6	3.4	2.4	3.8	3.2	2.4	2.8	3.0

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)
†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)
**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See appendices for description.)

Table V. Basic Data on Dale-Chall Readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1972 (Form USA 25)

Passage number	1	2	3	4	5	6	7	8	9	Average
Average sentence length	30	22	23	17	42	26	21	26	45	28.0
Dale score (percent unfamiliar words)	26	26	13	24	24	31	37	16	25	24.6
Raw score	9.23	8.83	6.83	8.27	9.49	9.82	10.50	7.45	9.86	8.91
Corrected grade level	13-15	11-12	7-8	11-12	13-15	13-15	16+	9-10	13-15	11-12
Chall Reading Stage Level of passage*	4	4	3	5	5	5	5	4	4	4.8
Harvard Readability Assessment Scale†	9	9	6	9	10	10	10	9	9	9.0
Number of words per passage	318	441	404	429	408	436	411	384	532	418.1
Number of questions per passage	5	5	5	5	5	5	5	5	5	5.0
Average degree of knowledge required by questions**	2.8	3.4	2.6	3.2	2.6	3.4	3.4	3.2	3.4	3.1

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)
†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)
**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See appendices for description.)

Table VI. Basic Data on Dale-Chall Readability Measures, Chall Reading Stages, Harvard Readability Assessment Scale, and Analyses of Questions for Each Reading Passage in SAT 1975 (Form XSA 1020)

Passage number	1	2	3	4	5	6	7	Average
Average sentence length	26	23	24	18	22	24	18	22.1
Dale score (percent unfamiliar words)	12	28	20	27	27	27	16	22.4
Raw score	6.82	9.20	7.98	8.79	8.99	9.09	7.06	8.27
Chall Reading Stage Level of passage*	4	4	4	4	4	4	4	4.0
Harvard Readability Assessment Scale†	8	9	8	9	8	8	9	8.4
Number of words per passage	401	424	450	448	420	367	584	442.0
Number of questions per passage	5	5	5	5	5	5	5	5.0
Average degree of knowledge required by questions**	1.8	2.6	2.8	1.8	2.4	2.8	2.4	2.4

*Chall Reading Stages range in increasing levels of maturity from 1 to 5. (See appendices for description.)
†Harvard Readability Assessment Scale ranges from 1-10 for passages of increasing difficulty equivalent to a range from Grade 1 to Grade 16+. (See appendices for description.)
**Average degrees of knowledge required by the questions range in increasing difficulty from 1 to 4. (See appendices for description.)

APPENDIX B

Question Complexity Rating Scale

This scheme was devised specifically for this study, to judge the questions on the SAT reading passages by measuring and numerically rating their degree of difficulty.

It is a judgmental scale, based primarily on the definition of knowledge as outlined by Bloom in his Taxonomy of Educational Objectives (1956) and including ideas on comprehension levels defined by Robert Ruddell (1974) and Frederick B. Davis (1968). In defining the construction of our scheme, we were strongly influenced by Dr. Edgar Dale's rubrics of "reading the lines; reading between the lines; reading beyond the lines."

Guidelines for application of this measure are:

Level 1 - Knowledge of facts (reading the lines): recall and reiteration of facts; identification of specifics such as dates, events, persons, places.

Level 2 - Knowledge of methods of dealing with specifics (reading the lines and between the lines): understanding organization, form and structure such as main ideas, inference; understanding style such as metaphors, verse, analogies and general scientific writing.

Level 3 - Knowledge of highly technical, specific and descriptive terminology (reading between and beyond the lines): understanding vocabulary of attributes, properties, relations, specificity and precision; knowledge of the multiple meanings of words.

Level 4 - Knowledge of universals and abstractions (beyond the lines): ability to use major schemes, principles, generalizations, theories, structure, and their interrelationships; knowledge of complex analogous relationships.

Questions found in history and literature textbooks were evaluated by applying this scheme to specific words within the questions.

Guidelines for application were:

Level 1 - Questions requiring recall and reiteration of facts, asking what, where, who, when, list, define.

Level 2 - Questions requiring recall and use of fact, asking how, why, describe.

Level 3 - Questions requiring the acknowledgment of more than one point of view, asking compare, contrast.

Level 4 - Questions incorporating the first three levels, requiring the reader to justify, support.

Assessment Schemes for Linguistic and Cognitive Complexity
for Grammar and Composition Textbooks

The schemes used for assessing the linguistic and cognitive complexity of reading passages were devised by Glenda Bissex, doctoral student, Harvard Graduate School of Education. These schemes, each using a three point scale, were developed for rating examples of good paragraph writing in grammar and composition textbooks. They are presented below:

Language - from familiar/informal/easy to formal/difficult

1. familiar vocabulary and syntax

2. more formal vocabulary and syntax
3. formal - technical or sophisticated vocabulary, elaborated sentences whose structures are characteristic of written rather than spoken language

Content - from close to distant
1. familiar life experiences presented in a straightforward manner
2. content more removed in time and place, or familiar content distanced by analysis or unusual point of view
3. complex content - highly detailed or highly abstract and analytical

Harvard Reading Assessment Scales - by Jeanne S. Chall, Glenda Bissex, Sue S. Conard, Susan H. Harris, Harvard Graduate School of Education (in press)

This scheme is based on a scale of graded passages developed within three content areas, increasing in difficulty from level 1 to level 10 (grades 1 - 16+). It is a judgmental instrument, offering a rapid, qualitative method of matching material and reader.

The scales were used in the analysis of the SAT reading passages. Initially, they were used in the analysis of eleventh grade history textbooks, but because of limited time and a high correlation with the Dale-Chall Formula, they were discontinued.

Chall's Reading Stages - A Measure of the Reading Maturity Required by the Reading Matter

To assess the levels of processing required by the SAT reading passages and the selected textbooks, we used the descriptions of the five Reading Stages (Chall, 1976) indicated below. The reading selection, story, and/or passage was read in its entirety and the Reading Stage Level assigned was the highest level of processing required for understanding what was read.

Stage 1 - Reading that is still mainly associating written to spoken words (decoding).

Stage 2 - Reading that confirms what is already known. Reading "the familiar" for practice in developing fluency. Energy is still concentrated on words, therefore vocabulary is within meaning vocabulary, although not always recognition vocabulary.

Stage 3 - Reading for new knowledge from one viewpoint: facts, concepts, how to do things. The reader is also learning a process--how to find information in a paragraph, chapter, book, etc. The vocabulary goes beyond the elemental, common experiences, being words that are unfamiliar and are learned from books and school.

Stage 4 - Reading from multiple viewpoints; involving greater depth of treatment, dealing with more than one set of facts, theories, viewpoints.

Stage 5 - Reading from a qualitative, relativistic world view. Reading used as one of many forms of knowing and experiencing. Reading that is selective, the ability to read as little or as much of a book as is necessary for the purpose.

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